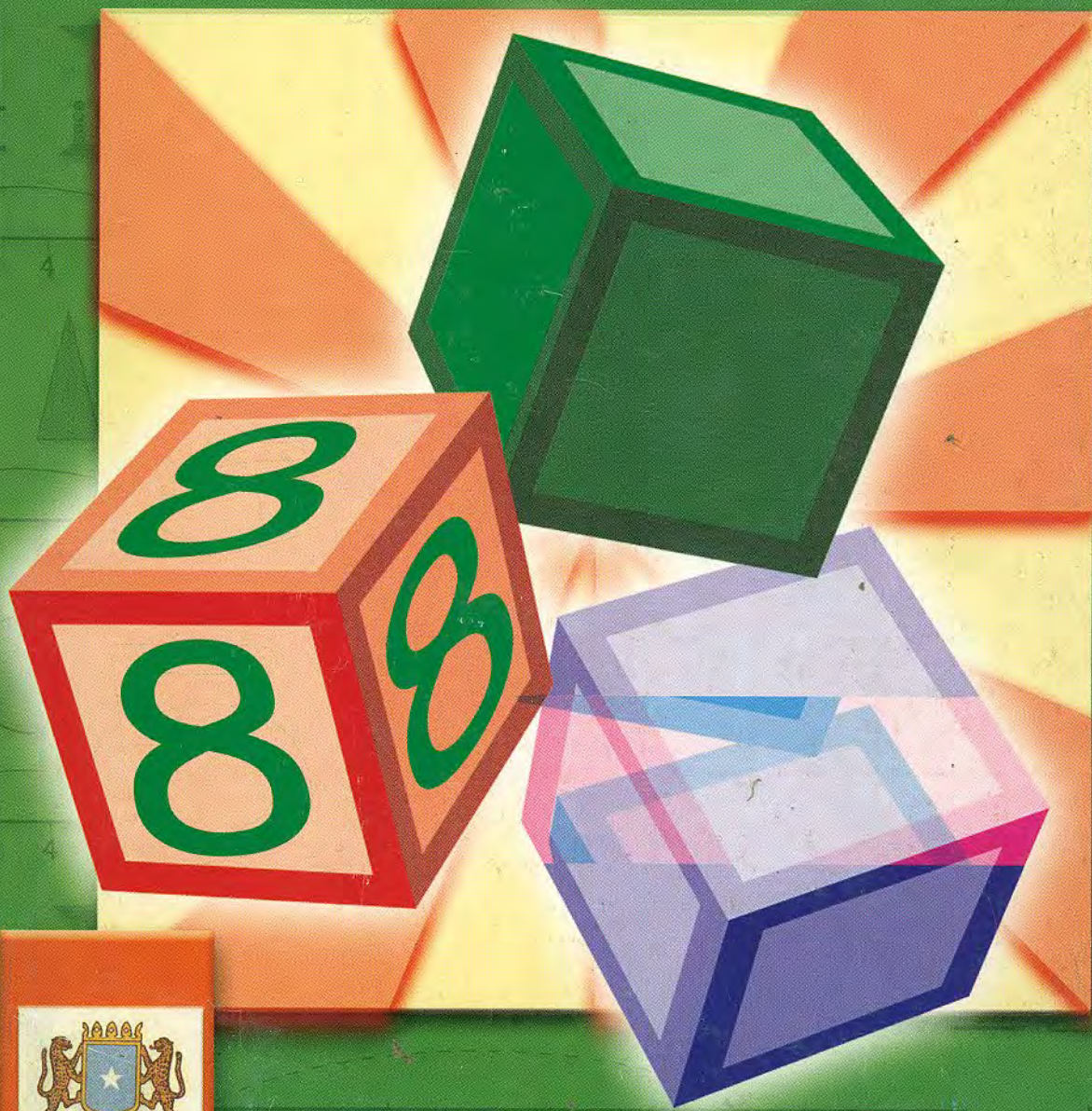


KISAAB

8



Wasaaradda Waxbarashada - Soomaaliya

XISAAB FASALKA 8AAD



Wasaaradda Waxbarashada

UNESCO

*Soomaaliya
2005*

Daabacaadda 1aad 2005

*Waxa daabici kara cidda
ay khuseyso oo keliya*

First published in 2005

All rights reserved

Qorayaasha:

1. Aadan Maxamed Macalin
2. Maxamed Cabdulqaadir Nuur
3. Cabduraxmaan Cali Daqare Warsame
3. Maxamed Cabduraxmaan Maxamed

*Waxa lagu daabacay
Nayroobi, Keenya*

Printed in Nairobi, Kenya

ARAR

Aniga oo ka wakiil ah UNESCO, waxa aan jeclahay in aan u mahadnaqo dhammaan dadkii ka qaybgalay horumarinta iyo soo saarista manhajka cusub, muqararrada iyo buugaagta loogu talagalay ardayda Soomaaliyeed ee ku jirta Fasallada Dugsiga Dhexe.

Marka ugu horreysa, waxa aan jeclahay in aan u mahadnaqo madaxda waxbarashada Soomaalida, qorayaasha buugaagta, madaxda qoreyaasha maaddooyinka, xubnaha guddiga hagidda, aqoonyahaannada, khubarada farsamada, dadkii garaacay, tarjumay, u sameeyey sawirrada iyo qaabeynta dadaalkii, hawlkarnimadii iyo shaqadii hufneyd ee ay muujiyeen intii ay socotay horumarinta iyo soo saarista buugaagtan.

Mahad gaar ah waxa leh Waaxda Horumarinta Caalamiga (DFID) ee U.K oo kaalmadoodii deeqsinimada lahayd la'aanteed, aan la gaari kari lahayn fulinta hawshan adag. Mahad qaali ah waxaa leh Ergada Beesha Yurub kaalmadii joogtada ahayd ee ay ka geysteen hawlihii horumarinta buugaagta waxbarashada ee Soomaalida. Waxa kale oo xusid mudan Qaybta Guddiga Waxbarashada (ESC) ee SACB iyo guddi hawleedkii ka koobnaa dhawrkii xubnood ee ka midka ahaa guddiga waxbarashada (ESC) talooyinkii waxtarka lahaa ee ay bixiyeen si tayada buugaagta kor loogu qaado.

Waxaa aan jeclahay in aan u mahad celiyo shaqaalaha UNESCO PEER shaqadii qiimaha iyo wax ku oolka ahayd, taas oo ugu dambayntii dhalisay in buugaagtan loo soo saaro ardayda dugsiga dhexe waqti waxbarashada asaasiga ah ee dalka ay si xad dhaaf ah u kordhayso una hodmayso. Dhab ahaantii kani waa waqti farxad u ah dhammaan intii u hawlgashay si ardayda Soomaaliyeed loogu helo waxbarasho asaasi ah oo tayo leh - waa xuquuq asaasi ah oo ay leeyihiin dhammaan gabdhaha iyo wiilasha dunida iyada oo aan loo eegin meesha ay joogaan iyo cidda ay yihiin.

In kasta oo dadaal badan lagu bixiyey tayada tifaftiridda, oo nuqulka buugguna yahay mid ku jira tijaabo, waxa jiri kara khaladaad xagga higgsaadda, naxwaha iyo kuwo kaleba. Waxa aan soo dhoweyneynaa talooyinkiina si kor loogu qaado tayada nuqulka xiga oo la daabici doono ka dib marka la dhammaystiro qiimaynta nuqulkan tijaabada ku jira.

Buugaagtan waxa loogu talagalay in ay ka faa'ideystaan ardayda iyo barayaasha Soomaaliyeed. Waxa aan rajeynayaa in ay u adeegsan doonaan sida ugu habboon si ay u kobciyaan xirfadahooda barashada iyo baridda.



Mohamed Djelid
Madaxa, UNESCO PEER

PREFACE

On behalf of UNESCO, I would like to thank all those who provided their valuable assistance to the development and production of the new curriculum, syllabi and textbooks for the Somali pupils in the Upper Primary Grades.

First and foremost, I would like to thank the Somali education authorities, textbook writers, subject panel heads, steering committee members, educationists, technical resource persons, translators, graphics and layout artists for their commitment, enthusiasm and diligent work in the development and production of these books.

Special thanks are due to the Department for International Development (DFID) without whose generous funding we would not have achieved this ambitious undertaking. Heartfelt thanks are also due to the the European Commission for its sustained support in the new Somali textbook development programme. Under the auspices of the SACB Education Sectoral Committee (ESC) a taskforce comprising several ESC partners gave valuable feedback and useful advice on the quality of the textbooks for which we are grateful.

I would like also to thank the UNESCO staff for their conscientious and diligent work through an arduous process which has finally led to the provision of these good and contemporary pupil books at a time when primary education in the country is being rapidly expanded and enriched. This is indeed an exciting time for all of us who are committed to providing quality primary education to Somali learners - a fundamental right of all learners no matter where they are and who they are.

Although every effort has been made to ensure quality, this being a pilot edition, it is possible that some spelling, grammatical and other errors remain. I welcome your suggestions for improvement of the next edition, which will see the light of day after a systematic evaluation of this pilot edition has been completed.

These textbooks are primarily for Somali students and teachers. I hope that they will use these books effectively to improve their learning and teaching skills.



Mohamed Djelid
OIC, UNESCO PEER

MAHADNAQ

Soomaaliya waqtigan xaadirka ah waxa ay ka soo baxaysaa shan iyo toban sanadood oo ay ku jirtey degannaansho la'aan siyaadeed, waxaa ayna higsaneysaa mustaqbal leh nabad iyo barwaaqo. Waqtigani oo kale waxbarashada da' yarta koreysa uma laha muhiimad aad u weyn dowladda oo keliya ee waxa ay u leedahay dhammaan inta u hawlgasha.

Dagaalkii sokeeye ee ka dhacay dalka waxa uu waxyeello weyn oo aan hore loo arag u geystey dhammaan dhismayaashii dugsiyada, qalabkii waxbarashada iyo macallimiintaba. Waxa dadaal wax ku ool ah sameeyey bulshada iyo madaxda waxbarashada deegaannada si ay mar labaad u bilaabaan dugsiyada iyaga oo ka helaya kaalmo bulshada caalamka.

Haddaba waxa si weyn loogu baahday buugaag casri ah oo ku habboon ardayda Soomaaliyeed iyo macallimiintaba kuwaas oo ku saleysan manhajka qaranka. Sidaas daraadeed, ka dib markii la tashi ballaaran iyo wadashaqeyn lala sameeyey madaxda waxbarashada Soomaaliyeed, ayaa UNICEF iyo UNESCO iyaga oo ka helaya kaalmo hay'daha deeqda bixiya sida, EC, Danida, DfID, Dawladda Netherland, iyo kuwo kale waxa ay u hawlgaleen sidii buugaagta dugsiyada asaasiga ah (fasallada 1aad ilaa 8aad) loogu heli lahaa carruurta Soomaaliyeed.

Dawladdu waxa ay mahad gaar ah u celinaysaa intii ka qayb qaadatay diyaarinta buugaagtan cusub ee dugsiyada dhexe kuwaas oo ay ka mid yihiin Qoreyaasha, Madaxda maaddooyinka, Tifaftirayaasha, Farshaxannada, ka kala socday qaybaha kala duwan ee Soomaaliya. Sidaa oo kale waxa mahad leh lataliyeyaasha caalamiga ah iyo dadkii daabacay. Wada shaqaynta aqooyahannadan la'aanteed suuragal ma ahaan lahayn in carruurta soomaaliyeed loo helo buugaagtan tayadooda iyo heerkoodu sarreeyso.

Wasaaradda Waxbarashada waxa ay aad ugu faraxsan tahay in ay xiriir la yeelato mashruucan oo aan filaayo in uu dib u dhiska Soomaaliya ku soo kordhin doono nabad iyo barwaaqo.

Waxa aan ardayda iyo macallimiinta Soomaaliyeed u rajeynayaa in ay ka helaan barid iyo barasho wax ku ool ah inta ay buugaagtaan ku dhex adeegsanayaan fasalladooda.



Mudane Cali Cabdullaahi Cosoble
Wasiirka Wasaaradda Waxbarashada

ACKNOWLEDGEMENT

Somalia is currently emerging from fifteen years of political instability and is looking forward to a peaceful and prosperous future. At such a time, the education of the younger generation becomes an absolute priority not only for the Government but for all stakeholders.

In the years immediately following the civil war, the situation on the ground led not only to the destruction of school facilities and instructional materials but also to teacher attrition on a scale never witnessed before. Gradually, an effort was made by communities and local education authorities to start up the schools again with the assistance of the international community.

One major requirement was the need for up-to-date and relevant textbooks for the young Somali learners and their teachers based on a common national curriculum. To this end, after country-wide consultations and in close collaboration with Somali authorities, UNICEF and UNESCO supported the development of primary textbooks (Grade 1 to Grade 8) in all subjects with funding from several donor agencies, notably, the EC, Danida, DfID, the Government of Netherlands, etc.

The government would like to acknowledge and thank all those who took part in the development of the new Somalia upper primary school textbooks: writers, panel heads, subject specialists, editors, artists and graphic designers hailing from every part of Somalia as well as expatriate consultants and printers. Without the hard work and dedication of all these professionals, our children and their teachers would not be getting a standardized set of high quality textbooks.

The Ministry of Education is very happy to be associated with this project which I am sure will directly contribute to the building of a peaceful and prosperous Somalia.

I wish good luck and joyful teaching and learning to Somali teachers and students as they use these textbooks on a day-to-day basis in their classrooms.



Hon Ali A. Osoble
Minister of Education

TUSMADA BUUGGA

Cutubka 1aad: Tirooyin	1
Naqtiin	1
Labajibbaar iyo xidid labajibbaar	5
Xidid Saddexjibbaar	10
Salalka tirooyinla	11
Cutubka 2aad: Jajabyo, Tobanleyaal iyo Boqolley	15
Jajabyo	15
Tobanleyaal	23
Jajab iyo Boqolley	30
Tobanleyaal iyo Boqolley	31
Boqolleyda korodhka iyo isdhimidda	33
Cutubka 3aad: Urur	36
Naqtiin	36
Hormo urur	37
Isutagga ururrada	38
Dhextaalka ururrada	41
Cutubka 4aad: Jibbaarada	44
Naqtiin	44
Jibbaar eber ah	44
Jibbaar taban	45
Qormo sayniseed	47
Logaridam	50
Cutubka 5aad: Dherer iyo Bed	55
Halbeegyada dhererka	55
Meeris	57
Wareeg	60
Bedka saddexagal	62

Jidadka bedka . . . . .	.64
Adeegsiga jidadka bedka . . . . .	.65
Bedka xudduudaha iyo qaababka isku jira . . . . .	.69
Bedka duleedka . . . . .	.72
Cutubka 6aad: Mug iyo Qaad . . . . .	.77
Sadjibekeyaal . . . . .	.77
Dhuluulubo . . . . .	.79
Mugga adkeyaasha daloola . . . . .	.81
Cutubka 7aad: Culayska . . . . .	.91
Halbeegyada culayska . . . . .	.91
Cutubka 8aad: Xawaare iyo Waqti . . . . .	.93
Xawaare . . . . .	.93
Celceliska xawaare . . . . .	.96
Xisaabinta waqtiga ay qaadaneysa . . . . .	.98
Cutubka 9aad: Lacag . . . . .	.100
Biilal . . . . .	.100
Faa'iido wadaag . . . . .	.101
Sicir dhimid iyo boqolleyda sicir dhimidda . . . . .	.104
Cutubka 10aad: Joometeri . . . . .	.107
Noocyada saddexagallada . . . . .	.107
Dhisidda saddexagallada . . . . .	.109
Xiriirada Baytoogooris . . . . .	.111
Dhex meeraynta saddexagal siman gobo . . . . .	.114
Goobo ku dhex meeraysan saddexagal . . . . .	.115
Shaxannada isku sargo'an . . . . .	.115
Saddexagallada isku sargo'an . . . . .	.118

Xaaladaha isku sargo'anaanta laba saddexagal	122
Shaxanno isu eg	126
Geesoole	130
Xaglaha geesoolaha	133
Cutubka 11aad: Samaynta heemaalidda	136
Saddexjibbaaraneyaasha	136
Sadjibekeyaal	136
Cutubka 12aad; Celcelisyada	143
Tirozin	143
Badidhace	143
Dhexfur	143
Cutubka 13aad: Garaafyo	148
Garaaf Jiitimeed iyo Graaf goobeed	148
Garaaf xarriiqeed	153
Xarriiqaha isgoya	154
Cutubka 14aad; Ereyada asaasiga u ah Itimaalka	157
Cutubka 15aad: Aljebra	162
Isle'eg toosan ee laba doorsoome leh	162
Furfurista isle'egyada wadajira	168
Habka aljibrada: Iskubeddelidda	173
Habka isugeynta ama kala goynta	175
Isireynta isle'eg saabley: Isirada ay wadaagaan	179
Isireynta saableyda gaarka ah	182
Furfurista isle'egta saabley	183

1 TIROOYIN



Naqtiin

- U qor ereyo ahaan:

b) 42 988 458	t) 15 107 362	j) 36 004 187
x) 27 988 453	kh) 86 567 000	d) 56 971 023
- U qor asto-tiro ahaan:

b) Sagaal iyo toban malyan, labo boqol toddobaatan iyo shan kun, siddeed boqol iyo soddon iyo kow.
t) Toddobaatan iyo kow malyan, shan boqol lixdan iyo afar kun, boqol iyo sagaashan iyo siddeed
j) Afartan iyo siddeed malyan iyo saddex boqol iyo labo iyo toban .
x) Konton iyo kow malyan iyo lixdan.
Kh) Lixdan iyo shan malyan, afar boqol iyo sagaashan kun, toddobo boqol iyo soddon iyo labo.
d) Labaatan iyo sagaal malyan sagaal boqol iyo sagaashan iyo sagaal kun.
- Qor qiime rugeedka iyo qiime wadareedka godka hoos ka xarriiqan.

b) 47 093 156	t) 80 024 397	j) 25 935 714	x) 30 248 916
---------------	---------------	---------------	---------------
- Dib u habbee godadka si loo helo (i)tirada ugu weyn (ii) tirada ugu yar.

b) 201 983	t) 87 014 356	j) 70 241 365
------------	---------------	---------------
- U qor sansaanka fidsan :

b) 24 619 658	t) 47 926 138	j) 58 346 291
x) 79 321 006	kh) 60 010 025	d) 80 030 045
- Kuwee ah labajibbaarrada tirooyin idil ?

b) 4	t) 6	j) 728	x) 49	kh) 185
d) 250	r) 196	s) 225	sh) 32	dh) 1 225
- Tirooyinkan soo socda kuwee u qaybsami kara

(i) 4	(ii) 6	(iii) 8	(iv) 9	(v) 11?
b) 40	t) 56	j) 184	x) 7 084	kh) 8 829
d) 26 872	r) 121 077	s) 5 183 440		

8. Habee tirooyinka soo socda adiga oo ka bilaabaya tirada ugu yar ilaa tirada ugu weyn.

b) 24 193	21 493	29 413	23 419
t) 85 136	86 136	84 136	83 136
j) 49 184	49 183	49 182	49 181
x) 53 278	52 278	54 278	55 278
kh) 96 425	97 425	95 425	94 425

9. Min guuri oo dhammeystir :

b.

8		6
	5	
4		2

t.

		3	13
5	11	10	
	7	6	
4	14		

Jaantuskan waxa uu muujinaya qiime rugeedka min malyanaad ilaa kowaad.

Boqol malyanaad	Toban malyanaad	Malyanaad	Boqol kumaad	Toban-kumaad	Kumaad	Boqolaad	Tobanaad	Kowaad	Dhibicda tobanlaha
10^8	10^7	10^6	10^5	10^4	10^3	10^2	10^1	1	

Sidaa oo kale qiime rugeedka waxa loo qori karaa qaab jibbaar.

Tusaalooyin :

- (i) U qor 543 278 ereyo ahaan:
- (ii) U qor 9 738 563 sansaanka fidsan adiga oo adeegsanaya dhufsanayaasha 10
- (iii) U qor 11 209 384 sansaanka fidsan adiga oo adeegsanaya jibbaaro.
- (iv) Qor qiime wadareedka tirooyinka hoos ka xarriiqan
 - b) 24 367 294 t) 18 245 093 j) 35 094 327 x) 5 263 508

(i) 543 278 – shan boqol afartan iyo saddex kun laba boqol iyo toddobaatan iyo siddeed

(ii) 9 738 563 =
 $(9 \times 1\,000\,000) + (7 \times 100\,000) + (3 \times 10\,000) + (8 \times 1000) + (5 \times 100) + (6 \times 10) + (3 \times 1)$

$$(iii) 11\ 209\ 384 = (1 \times 107) + (1 \times 106) + 2 \times 105 + 0 \times 104 + (9 \times 103) + 3 \times 102 + 8 \times 101 + (4 \times 1)$$

$$(iv) b) 4\ 000\ 000 \quad t) 40\ 000 \quad j) 30\ 000\ 000$$

layli 1

- U qor asto-tirooyinka soo socda ereyo ahaan:
 - 21 201 201
 - 60 00 060
 - 102 456 702
 - 55 555 555
- U qor kuwan sansaanka fidsan adiga oo adeegsanaya dhufsanayaasha toban:
 - 4840
 - 497 215
 - 15 137 249
 - 6407
- U qor kuwan sansaanka fidsan adiga oo adeegsanaya jibbaaro:
 - 72 643 057
 - 3 404 627
 - 2 075 341
- U qor tirooyinkan asto-tiro ahaan :
 - Lix malyan, laba boqol,iyo afar kun, toddobo boqol iyo sagaashan iyo siddeed.
 - Shan boqol iyo toddobo kun siddeed boqol iyo afar .
 - Soddon iyo afar kun, lix boqol iyo toddobo iyo toban.
 - Labaatan malyan, afartan iyo lix kun, sagaal boqol iyo shan .
 - Siddeetan iyo shan malyan iyo shan .
 - Labo boqol malyan, boqol iyo toddobo kun, lix boqol iyo konton iyo kow .
 - Boqol iyo kow iyo toban malyan, boqol toban iyo kow kun, boqol iyo toban iyo kow.
 - Shan boqol malyan, boqol kun iyo shan .
- Waa maxay qiime wadareedka 3 ee ku jira tirooyinkan ?
 - 630
 - 503 107
 - 235 710
 - 32 031 592
- Waa maxay qiime rugeedka godadka hoos ka xarriiqan ee tirooyinkan?
 - 234 452 236
 - 123 456 789
 - 8 654 321
 - 100 254 314
- U duub tobanka ugu dhaw:
 - 587
 - 24 336 172
 - 4309
- U duub malyanka ugu dhaw:
 - 45 267 304
 - 19 438 276
 - 24 806 532
- U duub jawaabaha su'aalahaan kunka ugu dhaw.
 - Taranka afar boqol iyo lixdan iyo shan iyo laba boqol soddon iyo afar.
 - Taranka siddeed boqol, afartan iyo lix iyo saddex boqol iyo siddeed.

Xusuusinta hubinta u qaybsamidda	
U qaybsamidda	Hubinta
2	Godka ugu dambeeya waa dhaban tusaale, 34
3	Wadarta godadka in ay u qaybsami karto 3 tusaale, 261
4	Tirada ka sameysanto labada god ee ugu dambeeya in ay u qaybsamayso 4 tusaale, 356
5	Godka ugu dambeeya waa 0 ama 5, tusaale, 95 ama 60
6	In ay u qaybsamayso 2 iyo 3, tusaale, 174
8	Tirada ka sameysanto saddexda god ee ugu dambeeya in ay u qaybsamayso 8, tusaale, 2 368
9	Wadarta godadka in ay u qaybsami karto 9, tusaale, 71 838
10	Godka ugu dambeeya waa 0 , tusaale, 5230
11	Faraqa wadarta godadka talantaaliga waa 0 ama waa u qaybsami kartaa 11, tusaale, 242

10. Hubi tirooyinkan in ay u qaybsami karaan : (i) 2, (ii) 3 iyo (iii) 6.

- b) 74 432 t) 4 845 j) 372 843 x) 67 848
 kh) 3 291 d). 11 725 r) 8 980 s) 153 756

11. Hubi tirooyinkan in ay u qaybsami karaan: (i) 4, (ii) 8 iyo (iii) 10.

- b. 3 560 t. 72 988 j. 426 320 x. 741 829
 kh. 94 184 d. 603 240 r. 9 043 s. 22 036

12. Hubi tirooyinkan in ay u qaybsami karaan: (i) 5, (ii) 9 iyo (iii) 11.

- b. 1 620 t. 17 820 j. 74 329 x. 106 920
 kh. 21 384 d. 75 425 r. 5 258 s. 25 542

Labajibbaar iyo xidid labajibbaar

Labajibbaarka waxa loo xisaabiyaa adiga oo tirada ku dhufta nafteda. Taas oo ah; labajibbaarka n waa $n \times n$ ama n^2 .

Marka tiro loo tibaaxo labo isir oo isle'eg , markaa mid ka mid ah isirada ayaa ah xidid labajibbaarka tiradaas.

Tusaalooyin

(i) Xisaabi labajibbaarka 41: $41^2 = 41 \times 41 = 1681$

(ii) Xisaabi xidid labajibbaarka 81

$$\sqrt{81} = \sqrt{9 \times 9} = 9$$

(iii) Xisaabi xidid labajibbaarka 16 900:

$$\begin{aligned} \sqrt{16900} &= \sqrt{169 \times 100} \\ &= \sqrt{13 \times 13 \times 10 \times 10} \\ &= 13 \times 10 \\ &= 130 \end{aligned}$$

(iv) Isiree 196 oo raadi: $\sqrt{196}$

2	196
2	98
7	49
7	7
	1

$$196 = 2 \times 2 \times 7 \times 7$$

$$\begin{aligned} \therefore 196 &= \sqrt{2 \times 2 \times 7 \times 7} \\ &= 2 \times 7 \\ &= 14 \end{aligned}$$

Layli 2

1. Xisaabi labajibbaarrada :

- | | | | | |
|--------|-------|--------|---------|--------|
| b) 37 | t) 98 | j) 16 | x) 220 | kh) 43 |
| d) 17 | r) 53 | s) 100 | sh) 171 | dh) 25 |
| c) 197 | g) 35 | | | |

2. Xisaabi xidid labajibbaarka :

- | | | | |
|------------|--------|-----------|--------------|
| b) 36 | t) 25 | j) 49 | x) 196 |
| kh) 256 | d) 400 | r) 22 500 | s) 1 440 000 |
| sh) 12 100 | dh) 64 | c) 900 | g) 324 |

3. Ka shaqee waxa soo socda:

- | | | | | |
|--------|--------|--------|--------|---------|
| b) 122 | t) 242 | j) 162 | x) 282 | kh) 302 |
|--------|--------|--------|--------|---------|

d) 3212 r) 2452 s) 4582 sh) 1122 dh) 7542

4. Dhul labajibbaarane ah ayaa leh dhinacyo dhererkoodu yahay 23 m. U raadi bedka dhulka mitir labajibbaaran ahaan.
5. Buug labajibbaarane ah ayaa cabbirkiisu yahay 12 sm iyo 12 sm iyo. U raadi bedkiisa sentimitir labajibbaaran ahaan.
6. Cagaf-cagafle ayaa ay tahay in uu falo gobol dhul oo labajibbaaran oo leh dhinac 35 m. Waa maxay bedka in uu falo ay tahay mitir labajibbaaran ahaan?
7. Qol labajibbaarane ah oo dhinaciisu yahay 12m ayaa sagxaddiisa la dhigay marmar oo midkiiba leh dherer 30 sm. Immisa marmar ayaa loo bahan yahay si loo dhigo sagxadda qolka oo dhan?
8. Isiree oo raadi xidid labajibbaarka:
 b) 625 t) 169 j) 324 x) 1225

Tirooyinka aan ahayn dhammaystir labajibbaaran looma isireyn karo isirro lammanayaal isle'eg. si loo helo xidid labajibbaarka tirooyinkaas oo kale, waxa aan adeegsanaynaa habka dheer.

Tusaale 1.

Xisaabi $\sqrt{754}$ oo u duub labo rug tobanle. $\sqrt{0754.00\ 00\ 00}$

Qor dhibcida tobanle. Isku lammaanee godadka

ku yaalla midigta iyo bidixda dhibcida	2		
tobanlaha. Ku bilaw lammaanaha hore ee	2	07 54 . 00 00 00	
bidixda Kaas oo ah, 07. Hel xidid	+2	- 4	
labajibbaarka 07 ee	4	3 54	

Ugu weyn, kaas oo ah, 2.

U qor 2 isir ahaan iyo qayb ka mid ah qaybta. Ka goo Lammaanaha hore ee godadka taranka 2 x 2 oo ah 4.

Soo deji lammaanaha labaad ee godadka. U gee isirka hore oo u adeegso wadarta (4) qayb ka mid ah isirka ku xiga .

Sheeg tiro marka la dhigo midigta 4

oo lagu dhufto tiradaas soo baxaysa

354 ama ka yar. Tirada waa 7.

Dhig 7 qaybta korka lammaanaha labaad ee

godadka. Taranka 47 x 7 waa 329. 354 Ka

goo 329 si loo helo 25.

	2 7	
	2	07 54 . 00 00 00
+2	- 4	
	47	3 54
+ 7	3 29	
	54	25

Isugee 47 iyo 7 si loo helo 54.

Ku meelee dhibicda tobanlaha qaybta

korka dhibicda tobanlaha ee la qaybshaha.

Soo deji labada god ee ku xiga. Sheeg tiro

marka la dhigo midigta 54 oo lagu dhufto tiradaas soo baxda 2500 ama ka yar. Tirada waa 4.

Isku dhufo 544 iyo 4 si loo

helo 2176.

2500 ka goo 2176. Ku

soco isla darriiqada

ilaa saddex rug tobanle

inta aadan u duubin labo

rug tobanle.

27.459 = 27.46(2 rt.)

	2 7 . 4 5 9	
	2	07 54 . 00 00 00
+2	- 4	
	47	3 54
+ 7	- 3 29	
	544	25 00
+ 4	- 21 76	
	5485	3 24 00.
+ 5	- 2 74 25	
	54909	49 75 00
+ 9	- 49 41 81	
		33 19

Layli 2

Xisaabi xidid labajibbarka oo u duud jawaabta la rug toabanle.

b) 106276

t) 27.3529

j) 135.326

- Isku lammaani godadka
- $\sqrt{10}$ ee ugu dhaw waa 3
- $3 \times 3 = 9, 10 - 9 = 1$
- soo deji labada god ee ku xiga (62)
- Ugee 3, waxa ay na siinaysaa 6
- $162 \div (6n \times n)$ oo $n = 2$
- $62 \times 2 = 124$
- $162 - 124 = 38$
- soo deji labada god ee ku xiga
- ugee 2 waxa ay na siinaysaa 64
- $3876 \div (62n \times n)$ $n = 6$
- $646 \times 6 = 3876$
- $3876 - 3876 = 0$

b)

$$\begin{array}{r}
 326.000 \\
 3 \overline{)106276.000000} \\
 \underline{9} \\
 62 \overline{)162} \\
 \underline{124} \\
 646 \overline{)3876} \\
 \underline{3876} \\
 0
 \end{array}$$

$\therefore \sqrt{106276} = 326$

t)

	5.23
	27.3529
5.	-25
23	
5	
+5	
102	235
+2	-204
1043	3129
3	-3129

Sida awgeed $\sqrt{27.3529} = 5.23$

- Isku lammaani godadka
- $\sqrt{27}$ ee ugu dhaw waa 5
- $5 \times 5 = 25, 27 - 25 = 2$
- soo deji labada god ee ku xiga (35)
- U gee 5, waxa ay na siinaysaa 10
- $235 \div (10n \times n)$ $n = 2$
- $102 \times 2 = 204, 235 - 204 = 31$
- soo deji labada god ee ku xiga (29)
- U gee 2, waxa ay na siinaysaa 104
- $3129 \div (104n \times n), n = 3$
- $1043 \times 3 = 3129$
- $3129 - 3129 = 0$

j) Iyada oo isla dariiqadii la raacayo

	1 1 . 6 3 2
1	01 35 . 32 60 00
+1	- 1
21	0 35
+1	- 21
226	14 32
+6	- 13 56
2323	76 60
+3	- 69 69
23262	6 91 00
2	- 4 65 25
	2 25 76

$$\begin{aligned} \text{Sida awgeed } \sqrt{135.326} &= 11.632 \\ &= 11.63 \text{ (2rt)} \end{aligned}$$

Tusaale 3:

Bedka goobo waa 616 sm². Xisaabi gacanka goobada .

$$B = \pi g^2 \quad (\text{u qaado } \pi = \frac{22}{7})$$

$$616 = \frac{22}{7} g^2$$

$$g^2 = 616 \div \frac{22}{7}$$

$$= 616 \times \frac{7}{22}$$

$$= 28 \times 7 = 196$$

$$\therefore g = 196\text{sm}^2 = \sqrt{2 \times 2 \times 2 \times 7 \times 7 \times \text{sm} \times \text{sm}}$$

$$= 2 \times 7$$

$$= 14\text{sm}$$

Layli 2

1. Qiimee:

b. $\sqrt{576}$

t. $\sqrt{6\,241}$

j. $\sqrt{5\,049}$

x. $\sqrt{5\,625}$

kh. $\sqrt{21\,329}$

d. $\sqrt{16\,384}$

r. $\sqrt{2.5225}$

s. $\sqrt{571.21}$

sh. $\sqrt{540.5961}$

2. Ka shaqee. U duub jawaabta hal rug tobanle.

b. $\sqrt{30}$

t. $\sqrt{58}$

j. $\sqrt{2}$

x. $\sqrt{5.329}$

kh. $\sqrt{3}$

d. $\sqrt{98.015}$

3. Ka shaqee . U duub jawaabta labo rug tobanle:
 b. $\sqrt{141}$ t. $\sqrt{825}$ j. $\sqrt{5}$
 x. $\sqrt{9.4}$ kh. $\sqrt{27.35}$ d. $\sqrt{7}$
4. Waxa la isa siiyay goobo bedkeedu yahay 1386 sm^2 . Raadi gacanka goobada (Uqaado $\pi = \frac{22}{7}$)
5. Dhererka laydi waa labalaabka ballaciisa. Bedka laydiguna waa 36.98 sm^2 . Raadi wareegga laydiga.
6. Raadi meeriska goobo ee bedkeedu yahay 706.5 m^2 . (u qaado $\pi = 3.14$)
7. Dhererka labo dhinac ee saddexagale qumman waa 16 sm iyo 7 sm . Xisaabi dhererka shakaalka adiga oo adeegsanaya xiriirka Baytegoris.

Xidid saddexjabbaar

Saddexjibbaarka 5 waa 125 xidid saddexjibbaarka waa 5.

Summadda loo adeegsado xidid saddexjibbaar waa $\sqrt[3]{}$

Haddaba $\sqrt[3]{125} = \sqrt[3]{5^3} = 5$ sida oo kale $\sqrt[3]{27} = \sqrt[3]{3^3} = 3$

Si loo helo xidid saddexjibbaarka tiro , tirada waa in loo tibaaxaa isiradeeda mutuxan. Haddii isir soo noqnoqdo saddex mar markaa isirkaas waa saddexjibbaarka tirada.

Tusaalooyin:

(i) Xisaabi xidid saddexjibbaarka b) 64 t) 216 j) 721

$$\text{b) } 64 = 8 \times 8 = 2 \times 2 \times 2 \times 2 \times 2 \times 2 = 2^3 \times 2^3$$

$$\begin{aligned} \sqrt[3]{64} &= \sqrt[3]{2^3 \times 2^3} \\ &= 2 \times 2 \\ &= 4 \end{aligned}$$

$$\begin{aligned} \text{t) } 216 &= 6 \times 6 \times 6 = 6^3 \\ \sqrt[3]{216} &= 6 \end{aligned}$$

$$\begin{aligned} \text{j) } 721 &= 9 \times 9 \times 9 = 9^3 \\ \sqrt[3]{721} &= \sqrt[3]{9^3} = 9 \end{aligned}$$

(ii) Xisaabi xidid saddexjibbaarka $\frac{7^3 \times 5^3}{2^3 \times 3^3}$

$$\sqrt[3]{\frac{7^3 \times 5^3}{2^3 \times 3^3}} = \frac{7 \times 5}{2 \times 3} = \frac{35}{6}$$

(iii) Xisaabi xidid saddexjibbaarka $\frac{1000}{1728}$

$$\frac{1000}{1728} = \frac{2 \times 2 \times 2 \times 5 \times 5 \times 5}{2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 3}$$

$$= \frac{2^3 \times 5^3}{2^3 \times 2^3 \times 3^3}$$

$$\sqrt{\frac{1000}{1728}} = \sqrt{\frac{2^3 \times 5^3}{2^3 \times 2^3 \times 3^3}} = \frac{2 \times 5}{2 \times 2 \times 3} = \frac{10}{12}$$

2	1000	2	1728
2	500	2	864
2	250	2	432
5	125	2	216
5	25	2	108
5	5	2	54
	1	3	27
		3	9
		3	3
		3	1

Salalka tirooyinka

Tusahan waxa uu isbarbardhigayaa tirooyinka sal 10 iyo sal 5 :

Sal 10	1	2	3	4	5	6	7	8	9	10
Sal 5	1	2	3	4	10	11	12	13	14	20
Sal 10	11	12	13	14	15	16	17	18	19	20
Sal 5	21	22	23	24	30	31	32	33	34	40
Sal 10	21	22	23	24	25	26	27	28	29	30
Sal 5	41	42	43	44	100	101	102	103	104	110
Sal 10	31	32	33	34	35	36	37	38	39	40
Sal 5	111	112	113	114	120	121	122	123	124	130

Godadka uu ku socdo sal 10 waa 0,1,2,3,4,5,6,7,8,9. Toban sal toban waxa loo qoraa 10. Toban sal 10 micnaheedu waa 1 koox oo toban ah iyo 0 koowaad .

Godadka uu ku socdo sal 5 waa 0,1,2,3,4. Shan sal 5 waxa loo qoraa 10. toban sal 5 micnaheedu waa 1 koox oo shan ah iyo kowaad oo aan jirin.

Tusaalooyin:

- (i) Qor micnaha iyo qiimaha :
 - b) 34 base 5 t) 34 base 10
 - b) 345 = 3 shanaad iyo 4 kowaad
 - = 3 x 5 + 4 x 1
 - = 15 + 4
 - = 19₁₀

- t) $34_{10} = 3 \text{ tobanaad iyo } 4 \text{ kowaadyo}$
 $= 3 \times 10 + 4 \times 1$
 $= 30 + 4$
 $= 34$
- b) Qor godadka loo adeegsado tirinta sal 10..
- t) Qor gododka loo adeegsado tirinta sal 5.
- j) Godadkee aad u malayneysaa in loo adeegsado tirinta sal 2?

U tirinta sal 2

Marka loo tirinaayo sal 2 waxa keliya oo la adeegsadaa 1 iyo 0.
 Tirooyinka sal 10 waxa ay leeyihiin qiime rugeedyadan:

Toban Toban Toban Toban	Toban Toban	Toban Toban Toban	Toban	kowaad
10^4	10^3	10^2	10^1	10^0
10000	1000	100	10	1

Tirooyinka sal shan waxa ay leeyihiin qiime rugeedyadan:

Shan Shan Shan Shan	Shan Shan Shan	Shan Shan	Shan	kowaad
5^4	5^3	5^2	5^1	5^0
625_{10}	125_{10}	25_{10}	5_{10}	1_{10}

Tirooyinka sal 2 waxa ay leeyihiin qiime rugeedyadan:

Labo Labo Labo Labo	Labo Labo Labo	Labo Labo	Labo	kowaad
2^4	2^3	2^2	2^1	2^0
16_{10}	8_{10}	4_{10}	2_{10}	1_{10}

- j) $122_5 = 1 \text{ shan shanaad iyo } 2 \text{ shanaad iyo } 2 \text{ kowaad}$
 $= 1 \times 5 \times 5 + 2 \times 5 + 2 \times 1$
 $= 1 \times 5^2 + 2 \times 5^1 + 2 \times 5^0$
 $= 25 + 10 + 2$
 $= 37_{10}$

U rog 59_{10} sal 5

$$\begin{array}{r|l} 5 & 59 \\ \hline 5 & 11 \text{ haraa 4 kowaadyo (11 shanaad, 4 kowaadyo)} \\ & 2 \text{ haraa 1 shan (2 shan shannaad, 1 shan)} \\ \hline & 1 \end{array}$$

$59_{10} = 2$ shan shannaad, 1 shan iyo 4 kowaadyo

$$\begin{aligned} & 2 \times 5^2 + 1 \times 5^1 + 4 \times 5^0 \\ & = 214_5 \end{aligned}$$

(iii) sal shan u rog sal 10

$$\begin{aligned} 114_5 &= 1 \text{ shan shannaad, 1 shanaad, 4 kowaadyo} \\ &= 1 \times 25 + 1 \times 5 + 4 \times 1 \\ &= 25 + 5 + 4 \\ &= 34_{10} \end{aligned}$$

Layli 3

1. U rog sal 10

b) 265 t) 130_5 j) 240_5 x) 304_5

2. U rog sal 5:

b) 2610 t) 3810 j) 4910 x) 5510

3. U rog sal 10:

b) 33_5 t) 132_5 j) 214_5 x) 344_5

Tusahan waxa uu isbarbardhigayaa tirooyinka sal 10 iyo sal 2

Sal 10	1	2	3	4	5	6	7	8	9	10
Sal 2	1	10	11	100	101	110	111	1000	1001	1010
Sal 10	11	12	13	14	15	16	17	18	19	20
Sal 2	1011	1100	1101	1110	1111	10000	10001	10010	10011	10100
Sal 10	21	22	23	24	25	26	27	28	29	30
Sal 2	10101	10110	10111	11000	11001	11010	11011	11100	11101	11110

Tusaalooyin:

(i) U rog sal 10

b) 100_2 t) 1111_2 j) 11011_2

$$\begin{aligned} \text{t) } 100_2 &= 1 \text{ laba labaad, 0 labaad iyo 0 kowaad} \\ &= 1 \times 2 \times 2 + 0 \times 2 + 0 \times 1 \\ &= 4 + 0 + 0 \\ &= 4_{10} \end{aligned}$$

t) $1111_2 = 1 \text{ laba} - \text{labo} - \text{labaad}; 1 \text{ laba} - \text{labaad}; 1 \text{ labo}; 1 \text{ kowaad.}$

$$= 1 \times 2 \times 2 \times 2 + 1 \times 2 \times 2 + 1 \times 2 + 1 \times 1$$

$$= 8 + 4 + 2 + 1$$

$$= 15_{10}$$

j) $11011_2 = 1 \text{ laba} - \text{laba} - \text{laba} - \text{labaad}; 1 \text{ laba} - \text{laba} - \text{labaad}; 0 \text{ laba} - \text{labaad}; 1 \text{ laba};$
 1 kowaad

$$= 1 \times 2 \times 2 \times 2 \times 2 + 1 \times 2 \times 2 \times 2 + 0 \times 2 \times 2 + 1 \times 2 + 1 \times 1$$

$$= 16 + 8 + 0 + 2 + 1$$

$$= 27_{10}$$

(ii) 4610 u rog sal 2

2	46	
2	23	Haraa 0 kowaad
2	11	Haraa 1 laba
2	5	Haraa 1 laba- laba
2	2	Haraa 1 laba- laba - laba
	1	Haraa 0 laba- laba - laba - laba

$$46_{10} = 1 \times 2^5 + 0 \times 2^4 + 1 \times 2^3 + 1 \times 2^2 + 1 \times 2^1 + 1 \times 2 + 0 \times 2^0$$

$$= 101110_2$$

(iii) 111111₂ u rog sal 10

$$111111_2 = 1 \times 2^5 + 1 \times 2^4 + 1 \times 2^3 + 1 \times 2^2 + 1 \times 2^1 + 1 \times 2^0$$

$$= 32 + 16 + 8 + 4 + 2 + 1$$

$$= 63_{10}$$

Layli 4

1. U rog sal 10

- b) 110_2 t) 1011_2 j) 10011_2 x) 1111011_2

2. U rog sal 2 :

- b) 37_{10} t) 21_{10} j) 43_{10} x) 60_{10}

3. U rog sal 10:

- b) 11001_2 t) 101111_2 j) 1110010_2

2 JAJABYO, TOBANLAYAAL IYO BOOQOLLEY

Jajabyo

Jajabyo isu dhigma (fududeyn)

Waxa aad soo baratay marka sarreeyaha iyo hooseeyaha jajab lagu dhufto ama loo qaybiyo tiro isku mid ah jajabka soo baxa waa jajab u dhigma.

Jajabyada u dhigma $\frac{3}{4}$ waa

$$\frac{3}{4}, \frac{6}{8}, \frac{9}{12}, \frac{12}{16}, \frac{15}{20}, \frac{18}{24}, \frac{21}{28}, \dots$$

Qaybshe weynaha ay wadaagaan sareeyaha iyo hooseeyaha $\frac{3}{4}$ waa 1. haddaba $\frac{3}{4}$ waxa lagu magacaaba tibixda ugu yhoosaysa ama tibixda ugu fudud. Jajab waa tibixda ugu hoosaysa ama ugu fudud haddii qaybshaha ugu weyn oo ay wadaagaan sareeyaha iyo hooseeyahau yahay 1.

Tusaalooyin:

(i) U dhin $\frac{15}{27}$ tibixda ugu fudud

$$\frac{15}{27} = \frac{5}{9} \quad \text{Uqabi kor iyo hoosba 3.}$$

ama isiree sarreeyaha iyo hooseeyaha ka dibna isu jar.

$$\frac{15}{27} = \frac{1}{3 \times 3 \times 3} \times \frac{3 \times 5}{3 \times 3 \times 3} = \frac{15}{27}$$

3	15	3	27
5	5	3	9
1	3	3	3
	1	1	1

ama:
Raadi qaybshaha ugu weyn ee ay wadaagaan (Q W W) 15 iyo 27
Adeegso Q W W si aad isugu jarto use the GCD to cancel

$$\frac{15}{27} = \frac{5}{9}$$

3	15	27
5	9	

QWW = 3

(ii) (ii) U fududee $\frac{124}{132}$ tibixda ugu fudud

$$\frac{124}{132} = \frac{62}{66}$$

$$= \frac{31}{33}$$

U qaybi kor iyo hoos 3.

Haddana u wada qaybi 2

ama :

2	124	132	QWW = 2 x 2 = 4	31
2	62	66	Adeegso QWW aad isugu	$\frac{124}{132} = \frac{31}{33}$
|	31	33	jarto	33

(iii) (iii) Jajabkee ugu weyn $\frac{36}{240}$ ama $\frac{23}{115}$?

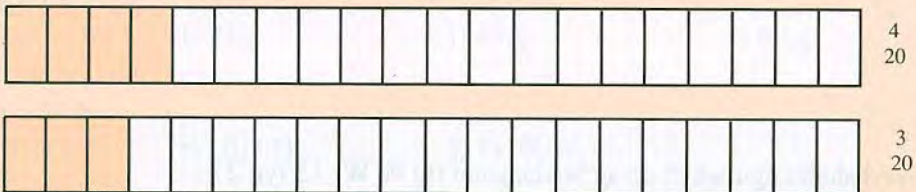
$\frac{36}{240}$ iyo $\frac{23}{115}$ waxa loo sii fududeyn karaa sida

$$\frac{3}{20} = \frac{36}{240} \quad \text{iyo} \quad \frac{1}{5} = \frac{23}{115}$$

$\frac{3}{20}$ iyo $\frac{1}{5}$ waxa la qori karaa jajabyo u dhigma iyada oo la adeegsanayo DHYW 5 iyo 20.

DHYW 5 iyo 20 waa 20

$$\frac{1}{5} = \frac{4}{20} \quad \text{iyo} \quad \frac{3}{20} = \frac{3}{20}$$



Maadaama hooseeyayaasha ay isle'eg yihiin, jajabka leh sarreeye weyn ayaa ka weyn kan kale.

$$\text{Sidaa awgeed } \frac{4}{20} > \frac{3}{20} \quad \text{iyo} \quad \frac{23}{115} > \frac{36}{240}$$

Layli 1

1. Fududee:

- b) $\frac{6}{8}$ t) $\frac{9}{27}$ j) $\frac{10}{20}$ x) $\frac{16}{20}$ kh) $\frac{18}{36}$ d) $\frac{30}{42}$
 r) $\frac{3}{20}$ s) $\frac{75}{100}$ sh) $\frac{225}{625}$ dh) $\frac{759}{1380}$ c) $\frac{252}{1728}$ g) $\frac{504}{672}$
 f) $\frac{168}{252}$ q) $\frac{325}{425}$

2. Sheeg oo qor jajabka ugu ee lammaane kasta

- b) $\frac{12}{36}$, $\frac{14}{54}$ t) $\frac{57}{51}$, $\frac{65}{85}$ j) $\frac{75}{119}$, $\frac{54}{72}$ x) $\frac{51}{119}$, $\frac{51}{136}$
 kh) $\frac{41}{50}$, $\frac{49}{84}$ d) $\frac{9}{27}$, $\frac{7}{28}$ r) $\frac{24}{42}$, $\frac{36}{63}$

3. Ka dib falanqaynta in isle'eg oo afar nooc carro oo kala duwan A,B,C iyo D, saynisyahan waxa uu helay inta dhoobo ee ku jirta mid walba waxa ay ahaayeen

$$A = \frac{1}{7}$$

$$B = \frac{2}{5}$$

$$C = \frac{1}{4}$$

$$D = \frac{5}{24}$$

U habee carrooyinka horsanaan fanata min nooca dhoobada ugu yar ku jirta ilaa nooca dhoobada ugu badan ku jirta.

4. Inta uu socday dugsiga, Caasho waxa ay $\frac{3}{16}$ maalinteeda ku bixisay akhrin oo $\frac{1}{8}$ maalinteeda ku bixisay cayaar. Waxqabadkee ayaa ay ku bixisay waqtigeeda inta ugu badan?

5. Jajabka barayaasha labka ah ee afar dugsi ee A,B,C iyo D waa:

$$A = \frac{12}{25}$$

$$B = \frac{10}{16}$$

$$C = \frac{13}{24}$$

$$D = \frac{7}{30}$$

Dugsigee ayaa haysta jajabka ugu fududee barayaasha labka ah ?

6. Dugsi ayaa u qabtay waalidiinta labo shir sannad gudihiisa . shirka hore jajabka dumarka ka soo qaybgalay waxa uu ahaa $\frac{13}{25}$ halka shirka labaad waxa uu ahaa $\frac{28}{50}$. Shirkee ka soo qaybgalay tirada dumarka ugu ugu weyn ?

Tiro dhafan iyo jajabyo ma qummane ah

Tiro dhafan waxa ay ka sameysan tahay tiro idil iyo jajab .

Tirada dhafan ee $\frac{1}{2}$, tirada idil waa 2 oo jajabka waa $\frac{1}{2}$.

jajabka $\frac{9}{7}$ (sarreeyaha waa 9 waa ka weyn tahay hooseeyaha 7)

Si jajab maqummane loogu beddelo tiro dhafan isu qaybi sarreeya iyo hooseeyaha .

Si tiro dhafan loogu beddelo jajab maqummane tirada idil ku dhufo hooseeyaha ka dibna ugee sarreeyaha

Tusaalooyin :

(i) U beddel $\frac{2}{5}$ jajab maqummane

$$3\frac{2}{5} = \frac{(3 \times 5) + 2}{5} = \frac{17}{5}$$

(ii) U beddel $\frac{27}{5}$ tiro dhafan.

$$= 27 \div 5$$

$$\frac{27}{5} = 5 \text{ haraa } 2$$

$$= 5\frac{2}{5}$$

Layli 2

1. Tirooyinkan dhafan u beddel jajab ma qummane:

b) $4\frac{2}{3}$

t) $3\frac{4}{7}$

j) $2\frac{9}{10}$

x) $7\frac{1}{8}$

kh) $6\frac{5}{11}$

d) $4\frac{3}{8}$

r) $9\frac{4}{5}$

s) $8\frac{9}{10}$

sh) $7\frac{1}{6}$

dh) $12\frac{7}{10}$

c) $3\frac{3}{7}$

g) $6\frac{2}{3}$

b) $4\frac{2}{77}$

t) $50\frac{3}{7}$

j) $7\frac{23}{25}$

x) $29\frac{2}{5}$

2. Jajab ma qummanayaashan u beddel tirooyin dhafan:

b) $\frac{19}{6}$

t) $\frac{15}{4}$

j) $\frac{19}{3}$

x) $\frac{37}{7}$

kh) $\frac{24}{5}$

d) $\frac{47}{6}$

r) $\frac{58}{7}$

s) $\frac{63}{8}$

sh) $\frac{11}{5}$

dh) $\frac{34}{9}$

c) $\frac{42}{4}$

g) $\frac{78}{9}$

f) $\frac{15}{6}$

q) $\frac{30}{7}$

k) $\frac{150}{12}$

l) $\frac{123}{20}$

Xisaabfallada Jajabyada

Isugeynta iyo kalagoynta Jajabyada

Tusaalooyin :

(i) Isugee $\frac{2}{9}$ iyo $\frac{1}{3}$

$$\frac{2}{9} + \frac{1}{3} = \frac{2+3}{9} = \frac{5}{9}$$

(ii) Ka shaqee $\frac{4}{5} + \frac{2}{9}$

$$\frac{4}{5} + \frac{2}{9} \text{ (DHYW 5 iyo 9 waa 45)}$$

$$\frac{4}{5} + \frac{2}{9} = \frac{(4 \times 9) + (2 \times 5)}{45}$$

$$= \frac{36 + 10}{45} = \frac{46}{45}$$

$$= 1\frac{1}{45}$$

(iii) Qiimee b) $\frac{1}{3} + \frac{1}{5} + \frac{1}{6}$

(DHYW 3, 5 iyo 6 waa 30)

$$\text{Sidaa awgeed } \frac{1}{3} + \frac{1}{5} + \frac{1}{6} = \frac{1 \times 10 \times 1 \times 6 \times 1 \times 5}{30}$$

$$= \frac{10 \times 6 \times 5}{30}$$

$$= \frac{7}{10}$$

t) $12\frac{2}{5} + 3\frac{1}{2}$

$$12\frac{2}{5} + 3\frac{1}{2} = (12 + 3) + \frac{2}{5} + \frac{1}{2}$$

$$= 15 + \frac{(2 \times 2) + (1 \times 5)}{10}$$

$$= 15 + \frac{9}{10}$$

$$= 15\frac{9}{10}$$

(iv) b) $8\frac{5}{8} - 3\frac{1}{3}$

$$8\frac{5}{8} - 3\frac{1}{3} \text{ (Dhyw) } = 24$$

$$8\frac{5}{8} - 3\frac{1}{3} = (8 - 3) + \frac{5}{8} - \frac{1}{3}$$

$$= 5 + \frac{15 - 8}{24}$$

$$= 5\frac{7}{24}$$

t) $2\frac{1}{2} + 3\frac{1}{4} - 1\frac{1}{6}$

$$= (2 + 3 - 1) + \frac{1}{2} + \frac{1}{4} - \frac{1}{6}$$

$$= 4 + \frac{6+3-2}{12}$$

$$= 4\frac{7}{12}$$

Layli 3

1.

b) $2\frac{2}{3} + 3\frac{3}{4}$

x) $6\frac{4}{9} + 5\frac{7}{12}$

r) $10\frac{7}{12} + 12\frac{7}{8} + 5\frac{5}{6}$

dh) $5\frac{3}{4} - 2\frac{5}{12}$

f) $7\frac{5}{12} - 4\frac{1}{8}$

t) $3\frac{2}{5} + 12\frac{5}{8}$

kh) $3\frac{7}{8} + 2\frac{3}{4} + 11\frac{5}{6}$

s) $12\frac{13}{16} + 2\frac{7}{8} + 1\frac{3}{4}$

c) $6\frac{3}{5} - 3\frac{1}{2}$

q) $7\frac{1}{8} - 3\frac{4}{5}$

j) $4\frac{2}{3} + 2\frac{3}{8}$

d) $4\frac{7}{10} + 2\frac{3}{4} + 5\frac{5}{8}$

sh) $1\frac{5}{6} + 4\frac{3}{5} + 5\frac{11}{15}$

g) $3\frac{2}{5} - 1\frac{1}{4}$

k) $5\frac{2}{3} - 4\frac{5}{6}$

2. Ka shaqee waxa soo socda :

b) $\frac{4}{5} - \frac{1}{8} + \frac{3}{4}$

x) $\frac{1}{4} - \frac{3}{4} + \frac{7}{8}$

r) $5\frac{7}{10} - 1\frac{2}{5} + 3\frac{3}{5}$

dh) $6\frac{1}{5} + 3\frac{3}{4} - 1\frac{1}{10}$

t) $\frac{5}{8} - \frac{9}{10} + \frac{4}{5}$

kh) $1\frac{1}{2} - 2\frac{3}{4} + 4\frac{5}{8}$

s) $4\frac{1}{3} - 5\frac{5}{8} + 2\frac{1}{4}$

c) $9\frac{3}{4} - 3\frac{3}{4} - 2\frac{3}{4}$

j) $\frac{1}{8} - \frac{3}{4} + \frac{4}{5}$

d) $3\frac{2}{5} - 2\frac{3}{4} + 4\frac{5}{6}$

sh) $12\frac{7}{12} + 6\frac{9}{10} + 3\frac{1}{2}$

Iskudhufashada iyo isuqaybinta jajabyada

Tusaalooyin:

(i) Raadi taranka

b) $\frac{15}{4} \times \frac{7}{20}$

$$\begin{array}{l} 3 \\ \cancel{15}^3 \times \frac{7}{\cancel{20}^4} = \frac{21}{16} \\ = 1\frac{5}{16} \end{array}$$

t) $6\frac{1}{8} \times 1\frac{2}{14}$

$$\begin{array}{l} 7 \\ 6\frac{1}{\cancel{8}^7} \times 1\frac{2}{\cancel{14}^7} = \frac{49}{8} \times \frac{16}{14} \\ = 7 \end{array}$$

(ii) Waa $\frac{2}{3}$ maxay ka 453 ?

$$\begin{array}{l} 151 \\ \frac{2}{3} \text{ ka } 453 = \frac{2}{3} \times \cancel{453}^{151} \\ = 302 \end{array}$$

3. Waa maxay

b) $\frac{7}{4} \div \frac{8}{5} ?$

t) $48 \div \frac{6}{8} ?$

j) $3\frac{3}{5} \div 3\frac{6}{7} ?$

$$\begin{aligned} \text{b) } \frac{7}{4} \div \frac{8}{5} &= \frac{\overset{1}{\cancel{7}}}{7} \times \frac{5}{\cancel{8}_2} \\ &= \frac{5}{14} \end{aligned}$$

$$\begin{aligned} \text{t) } 48 \div \frac{6}{8} &= \frac{48}{\cancel{8}_1} \times \frac{8}{6} \\ &= 64 \end{aligned}$$

$$\begin{aligned} \text{j) } 3 \frac{3}{5} \div 3 \frac{6}{7} &= \frac{18}{5} \div \frac{27}{7} \\ &= \frac{\overset{2}{\cancel{18}}}{5} \times \frac{7}{\cancel{27}_3} \\ &= \frac{14}{15} \end{aligned}$$

Xeer: kala rog jajabka dambe ka dibna isku dhufo.

(iv)

$$\begin{aligned} \text{b) } \frac{1}{3} \div \left(\frac{1}{4} \div \frac{3}{8} \right) \\ \frac{1}{3} \times \left(\frac{1}{4} \div \frac{3}{8} \right) &= \frac{1}{3} \times \left(\frac{\overset{2}{\cancel{1}}}{4} \times \frac{\overset{1}{\cancel{8}}}{3} \right) \\ &= \frac{\overset{1}{\cancel{1}}}{3} \times \frac{\overset{1}{\cancel{2}}}{3} = \frac{1}{6} \end{aligned}$$

$$\begin{aligned} \text{t) } \frac{3}{4} \times \frac{1}{6} \div \frac{5}{8} \\ \frac{3}{4} \times \frac{1}{6} \div \frac{5}{8} &= \frac{\overset{1}{\cancel{3}}}{4} \times \frac{1}{\cancel{6}_2} \times \frac{\overset{8}{\cancel{8}}}{5} \\ &= \frac{1}{5} \end{aligned}$$

Layli 4

1.

b) $\frac{8}{6} \times \frac{9}{16}$

x) $7 \frac{1}{7} \times 1 \frac{4}{10}$

r) $\frac{8}{9} \times \frac{27}{32}$

dh) $\frac{3}{4} \times 64$

f) $\frac{8}{9} \times 36$

l) $\frac{3}{4} \times 16$

t) $\frac{24}{40} \times \frac{25}{18}$

kh) $1 \frac{1}{9} \times 1 \frac{1}{5}$

s) $\frac{5}{6} \times \frac{36}{55}$

c) $\frac{1}{3} \times 27$

q) $\frac{2}{3} \times \frac{1}{2}$

j) $2 \frac{1}{2} \times 1 \frac{1}{5}$

d) $5 \frac{5}{8} \times 1 \frac{3}{5}$

sh) $\frac{1}{5} \times 625$

g) $\frac{7}{8} \times 32$

k) $\frac{5}{6} \times 24$

2.

b) $\frac{1}{2} \times \frac{2}{3} \times \frac{1}{4}$

x) $\frac{1}{2} \times \frac{1}{3} \times \frac{1}{4}$

r) $9 \frac{4}{5} \times 5 \frac{3}{4}$

t) $\frac{1}{2} \times \frac{1}{3} \times \frac{2}{5}$

kh) $2 \frac{3}{5} \times 3 \frac{5}{8} \times 4 \frac{1}{4}$

s) $3 \frac{5}{6} \times 4 \frac{7}{10} \times \frac{1}{5}$

j) $\frac{2}{3} \times \frac{3}{4} \times \frac{4}{5}$

d) $3 \frac{3}{10} \times 4 \frac{3}{8} \times 2 \frac{2}{3}$

3.

b) $\frac{8}{6} \div \frac{16}{36}$

x) $4 \frac{3}{10} \div 3 \frac{3}{5}$

r) $5 \frac{1}{7} \div 3 \frac{2}{5}$

dh) $3 \frac{2}{5} \div 5 \frac{7}{10}$

t) $2 \frac{2}{5} \div \frac{6}{25}$

kh) $2 \frac{3}{5} \div 3 \frac{2}{3}$

s) $5 \frac{2}{9} \div 3 \frac{2}{9}$

c) $3 \frac{2}{5} \div 2 \frac{1}{3}$

j) $5 \frac{4}{5} \div 2 \frac{1}{3}$

d) $15 \frac{2}{3} \div 3 \frac{3}{8}$

sh) $2 \frac{1}{4} \div 3 \frac{3}{4}$

g) $25 \frac{2}{3} \div \frac{1}{3}$

4.

b) $\frac{3}{5} \times \frac{2}{7} \div \frac{1}{3}$

x) $5 \times \frac{1}{2} \div \frac{3}{10}$

r) $2\frac{7}{10} \times \frac{5}{6} \div 3$

dh) $2\frac{2}{3} \div 4 \times 1\frac{5}{6}$

t) $\frac{1}{2} \times \frac{3}{2} \div \frac{4}{5}$

kh) $1\frac{3}{8} \times 2\frac{1}{4} \div 1\frac{5}{16}$

s) $7\frac{1}{2} \times 21 \div 1\frac{3}{10}$

c) $\frac{1}{2} \times \frac{1}{2} \div \frac{2}{5}$

j) $\frac{1}{2} \div \frac{3}{2} \times \frac{4}{5}$

d) $4\frac{1}{2} \div 1\frac{1}{5} \times 3\frac{1}{3}$

sh) $1\frac{4}{5} \times 1\frac{3}{10} \div \frac{2}{15}$

g) $\frac{1}{2} \times (1\frac{1}{2} \div \frac{3}{4})$

Xisaabfallo isku jira

Layli 5

1. Fududee:

b) $(1\frac{1}{2} \times 2\frac{4}{5} \div \frac{1}{2}) + 2\frac{3}{4}$

j) $(1\frac{3}{4} \times 2\frac{5}{8} \div 3\frac{8}{15}) + 4\frac{5}{6}$

t) $2\frac{3}{10} + (\frac{1}{3} \times 1\frac{5}{8} + 2\frac{1}{2})$

x) $\frac{7}{8} \times (1\frac{1}{5} + 3\frac{4}{9} \times 2\frac{1}{6})$

2. Fududee:

b) $3\frac{3}{8} \text{ ka } \frac{2}{3} \div (2\frac{1}{5} \times \frac{4}{5} + 3\frac{1}{5})$

j) $2\frac{2}{5} \div (4\frac{1}{3} - \frac{5}{8} \times 2\frac{1}{4})$

t) $3\frac{3}{4} \div (2\frac{2}{3} \times 1\frac{5}{8} + 3\frac{3}{4})$

x) $(2\frac{1}{2} + 3\frac{4}{5} \times 4\frac{1}{2}) \times \frac{1}{6}$

3. Fududee:

b) $(3\frac{1}{2} - 1\frac{4}{5} + 1\frac{1}{2}) + 2\frac{3}{4}$

j) $(3\frac{3}{4} - 6\frac{5}{8} + 4\frac{8}{15}) + 7\frac{5}{6}$

t) $3\frac{3}{10} + (1\frac{1}{3} - 3\frac{5}{8} + 5\frac{1}{4})$

x) $7\frac{7}{8} - (4\frac{1}{5} + 1\frac{4}{9}) - 1\frac{1}{6}$

4. Fududee:

b) $(4\frac{1}{2} \times 2\frac{4}{5} - \frac{1}{2}) - 1\frac{3}{4}$

j) $(1\frac{3}{4} \times 4\frac{5}{8} - 1\frac{8}{15}) - 1\frac{5}{6}$

t) $7\frac{3}{10} (2\frac{1}{3} \times 3\frac{5}{8} - 2\frac{1}{4})$

x) $2\frac{7}{8} \times (3\frac{1}{5} - 1\frac{4}{9}) \times 1\frac{1}{6}$

5. Fududee:

b) $7\frac{6}{8} \div (2\frac{1}{2} \times 2\frac{4}{5}) - 1\frac{5}{6}$

j) $5\frac{2}{5} \div (1\frac{1}{4} \times 2\frac{3}{8}) - 1\frac{8}{15}$

t) $8\frac{1}{6} \div (\frac{2}{3} \times 1\frac{5}{8}) - 4\frac{3}{4}$

x) $(18\frac{1}{2} - 2\frac{4}{5} \times 3\frac{1}{2}) \div \frac{1}{6}$

6. Fududee:

b) $\frac{5}{6} + (\frac{7}{8} \text{ ka } \frac{4}{5} - \frac{1}{5}) \div 1\frac{4}{5}$

j) $1\frac{1}{2} \times 2\frac{3}{4} + (\frac{5}{8} - \frac{1}{4} \div \frac{4}{5})$

t) $4\frac{4}{5} + (\frac{2}{5} + \frac{3}{4} \times \frac{5}{8}) \div 2\frac{3}{4}$

x) $\frac{1}{2} \div (\frac{3}{4} + \frac{4}{5}) \times \frac{5}{8}$

7. Fududee:

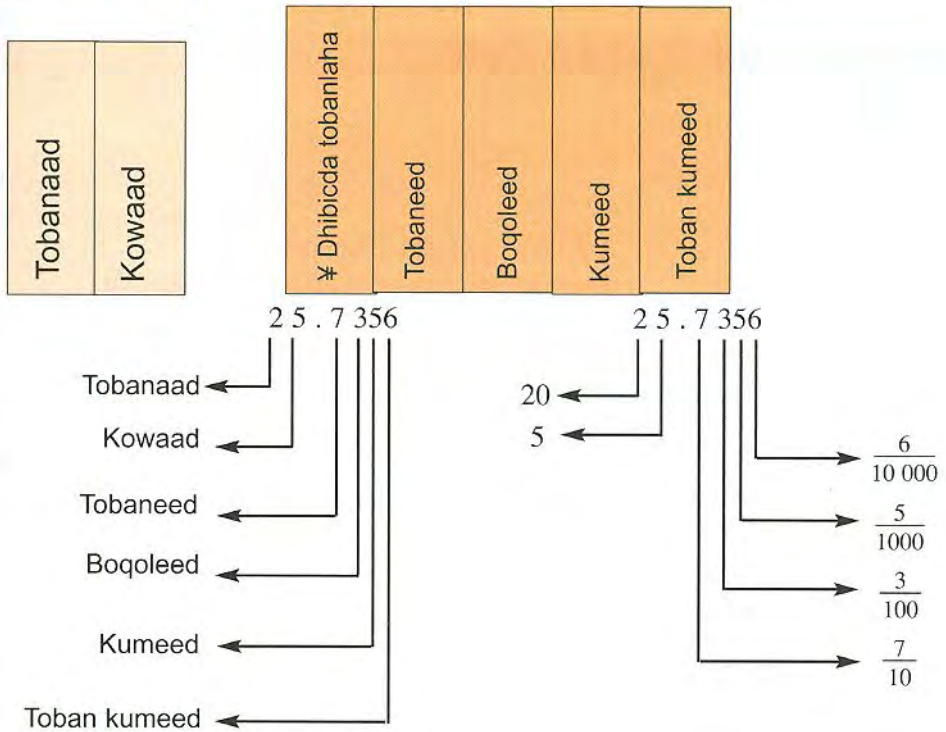
b) $(\frac{3}{4} + \frac{2}{5} \times \frac{5}{8}) \div \frac{1}{4}$

j) $(6\frac{1}{3} - \frac{5}{8} \times 1\frac{1}{4}) \div 2\frac{4}{5}$

t) $1\frac{3}{4} + (\frac{7}{10} \times \frac{2}{5} \div \frac{1}{4})$

x) $(6\frac{3}{10} - \frac{3}{8} \times 2\frac{4}{5}) \div 1\frac{3}{4}$

Tobanlayaal



$$25.7356 = 20 + 5 +$$

Layli 6

1. Waa maxay qiimaha iyo qiime wadareedka god kasta oo hoos ka xariiqan?

- | | | |
|-------------------|-------------------|-----------------|
| b) <u>0.8654</u> | t) <u>0.3172</u> | j) <u>0.421</u> |
| x) <u>20.1404</u> | kh) <u>5.0005</u> | d) <u>36.36</u> |
| r) <u>0.0071</u> | s) <u>0.236</u> | |

2. b) Qor tobanle leh 5 boqoleed.

- t) Qor tobanle leh 9 toban-kumeed.
j) Qor tobanle leh kumeed iyo 5 rug tobanle.

3. U qor horsanan fanata

- | | | | |
|----------|--------|--------|--------|
| b) 0.07 | 0.6 | 0.66 | 0.006 |
| t) 2.5 | 2.005 | 1.555 | 2.505 |
| j) 5.08 | 5.80 | 5.88 | 5.18 |
| x) 0.007 | 0.01 | 0.1 | 0.0001 |
| kh) 0.3 | 0.0030 | 0.0003 | 0.033 |

4. U qor iyada oo lo saxay :

- b) hal rug tobanle t) Labo rug tobanle j) Saddex rug tobanle

(i) 2.7459
(v) 1.9969

(ii) 31.1456
(vi) 1.1922

(iii) 6.8914
(vii) 4.7829

(iv) 0.4480
(viii) 6.6668

Isugeyn iyo kalagoyn

Tusaalooyin:

$$\begin{array}{r} 25.6 + 24.32 + 512.758 \\ 25.6 \\ 24.32 \\ + 512.758 \\ \hline 562.678 \end{array}$$

ku habee godadka joog ahaan
iyada oo loo eegayo qiime rugeedyadooda

$$\therefore 25.6 + 24.32 + 512.758 = 562.678$$

$$\begin{array}{r} \text{(ii) } 5.28 - 3.028 \\ 5.28 \\ - 3.028 \\ \hline 2.252 \end{array}$$

ku habee godadka joog ahaan

$$\therefore 5.28 - 3.028 = 2.252$$

Layli 7

- b) $6.2983 + 13.04$
j) $0.78 + 15.214$
kh) $0.0789 + 11.299$
r) $7.198 + 10.3458$
sh) $0.72 + 9.7854j$
c) $670.25 + 503.88 + 142.602$
f) $64.5 + 26.301 + 514.03 + 3.069$
t) $16.275 + 8.0456$
x) $11.07 + 2.1235$
d) $17.024 + 0.0987$
s) $94.7294 + 6.123$
dh) $801.75 + 125.022 + 28.003 + 0.875$
g) $235.808 + 36.725 + 475.58 + 0.875$
- b) $27.132 - 5.0541$
j) $13.5 - 2.745$
kh) $11.0549 - 2.7897$
r) $0.54 - 0.0719$ h d
sh) $42.7 - 3.0984$
t) $9.284 - 3.0549$
x) $94.07 - 3.258$
d) $0.73 - 0.4212$
s) $9.2784 - 3.24$
- b) $76.61 - (27.34 + 17.554) + 0.998$
t) $85.96 - (20.887 + 13.455) + 32.54$
j) $102.67 + (44.67 + 3.887) - 34.0088$
x) $56 - (3.54 + 8.76) - 12.43 + 19.887$

Isku dhufasho

Tusaalooyin:

(i) b) 6.43×5.3
 x) 4.325×1000

t) 6.34×10

j) 12.327×100

b) Isugu dhufo sida tirooyinka idil oo kale ka dibna xisaabi rugaha tobanlaha markaa dhig dhibicda tobanlaha.

$$\begin{array}{r} \underline{643} \\ \times \quad 53 \\ \hline 1929 \\ 3215 \\ \hline 34079 \end{array}$$

6.43 iyo 5.3 guud ahaantooda waxa ku jira 3 rug tobanle . Ka soo tiri 3 rug tobanle dhanka midigta.

$$34 \overset{\frown}{\underset{\frown}{0}} \overset{\frown}{\underset{\frown}{7}} \overset{\frown}{\underset{\frown}{9}}$$

$$34.079$$

t) $6.34 \times 10 = 63.40 = 63.4$

Si 10 loogu dhufto tobanle, dhibicda tobanlaha ayaa hal rug loo rarayaa dhanka midigta.

j) $12.327 \times 100 = 1232.700 = 12327$

Si 100 loogu dhufto tobanle, dhibicda tobanlaha ayaa laba rug loo rarayaa dhanka midigta.

x) $4.325 \times 1000 = 4325.000 = 4325$

Si 1000 loogu dhufto tobanle, dhibicda tobanlaha ayaa saddex rug loo rarayaaa dhanka midigta.

Layli 8

Ka shaqee:

1. b) 5.3×8

t) 25.86×34

j) 517.82×71

x) 251×1.3

kh) 311×15.9

d) 412×234.6

r) 23×2.46

s) 41×97.15

sh) 567×1.224

2. b) 38.395×16.04

t) 32.81×0.0059

j) 53.164×23.04

x) 87.12×0.0054

kh) 13.27×0.00897

d) 401.25×0.005

r) $6.842 \times 37.8 \text{ h}$

s) 6.734×5.06

sh) 5.876×45.32

3. b) 1.4×10

t) 4.2078×10

j) $0.05 \times 10 \text{ d}$

x) 0.001×100

kh) 347.2077×100

d) 0.7×100

r) 43.001×1000

s) 7.033×100

sh) 1000.4×100

dh) 3.04×100000

c) 127.43007×100000

g) 0.01×100000

Isu qaybin

Tusaalooyin:

(i) b) $5.16 \div 12$

t) $1.44 \div 0.3$

j) $0.021 \div 7$

b) $5.16 \div 12$

$$\begin{array}{r} 0.43 \\ 12 \overline{)5.16} \\ \underline{48} \\ 36 \\ \underline{36} \\ 00 \end{array}$$

t) $1.44 \div 0.3 = \frac{1.44}{0.3}$

$$= \frac{1.44 \times 10}{0.3 \times 10}$$

$$= \frac{1.44}{0.3} = 14.4 \div 3$$

$$= 4.8$$

$$\begin{array}{r} 4.8 \\ 3 \overline{)14.4} \\ \underline{12} \\ 24 \\ \underline{24} \\ 00 \end{array}$$

j) $0.021 \div 7$

$$\begin{array}{r} 0.003 \\ 7 \overline{)0.021} \\ \underline{21} \\ 0 \end{array}$$

(ii) b) $757.4 \div 10$

t) $757.4 \div 100$

j) $757.4 \div 1000$

$$\begin{array}{r} 75.74 \\ 10 \overline{)757.4} \\ \underline{75} \\ 57 \\ \underline{50} \\ 74 \\ \underline{70} \\ 40 \\ \underline{40} \\ 00 \end{array}$$

$$\begin{array}{r} 7.574 \\ 100 \overline{)757.4} \\ \underline{700} \\ 574 \\ \underline{500} \\ 740 \\ \underline{700} \\ 400 \\ \underline{400} \\ 000 \end{array}$$

$$\begin{array}{r} 0.7574 \\ 1000 \overline{)757.4} \\ \underline{7000} \\ 5740 \\ \underline{5000} \\ 7400 \\ \underline{7000} \\ 4000 \\ \underline{4000} \\ 0000 \end{array}$$

Marka aad u fursato tusaalaha (ii) waxa aad arkaysaa:

- Si 10 loogu qaybiyo, waxa aad dhibicda tobanlaha u dhaqaajinaysa hal rug dhanka bidix.
- Si 100 loogu qaybiyo, waxa aad dhibicda tobanlaha u dhaqaajinaysa labo rug dhanka bidix .
- Si 1000 loogu qaybiyo, waxa aad dhibicda tobanlaha u dhaqaajinaysa saddex rug dhanka bidix

(iii) b) Waa maxay qiimaha $\frac{0.48 \times 0.305}{0.006}$

Ku dhufo sarreeyaha iyo hooseeyaha 1 000si aad u ga dhigto 0.006 tiro idil,

$$\begin{aligned} \frac{0.48 \times 0.305}{0.006} &= \frac{0.48 \times 0.305 \times 1000}{0.006 \times 1000} \\ &= \frac{1.48 \times 305}{6} \\ &= \frac{146.4}{6} = 24.4 \end{aligned}$$

b) $74.8 \div (1.1 \times 0.5)$

Dib ugu qor $74.8 \div (1.1 \times 0.5)$ sida $\frac{74.8}{1.1 \times 0.5}$

Ku dhufo sarreeyaha iyo hooseeyaha 100

$$\begin{aligned} \frac{74.8}{1.1 \times 0.5} &= \frac{74.8 \times 100}{1.1 \times 0.5 \times 100} \\ &= \frac{7480}{11 \times 5} \\ &= \frac{7480}{55} \\ &= 136 \end{aligned}$$

Layli 9

1. b) $0.42 \div 0.5$ t) $0.107 \div 0.3$ j) $8.75 \div 0.15$
 x) $9.16 \div 0.12$ kh) $3.354 \div 0.583$ d) $10.008 \div 0.009$
 r) $16 \div 0.025$ h s) $13 \div 0.013$ sh) $57 \div 0.057$
2. b) 5.25×6.35 b t) 12.005×1.8 j) $55 \times (0.24 \div 32)$
 x) $5.02 \times (34 \div 0.001)$ kh) $\frac{0.305 \times 0.48}{0.2 \times 0.006}$ d) $\frac{6.3 \times 2.25}{12.6}$
3. b) $6.702 \div 100$
 t) $0.002 \div 10000$
 j) $0.7 \div 1000$
 x) $34247.85 \div 10000$
 kh) $78042501 \div 10000$
4. b) $\frac{20}{1.25 \times 0.08}$ t) $\frac{0.003 \times 0.0}{0.0030}$ j) $\frac{37.15}{5 \times 1.1}$
 x) $\frac{1 \times 7.14}{1.7 \times 0.21}$ kh) $\frac{0.001 \times 5.5}{0.1 \times 0.011}$ d) $\frac{1.08}{0.09 \times 0.24}$
5. Xisaabi oo u tibaax jawaabta afar rug tobanle:
- b) $\frac{0.54}{0.005 \times 1.5}$ t) $\frac{1.2005 \times 0.1}{16.1 \times 17.08}$
 j) $\frac{2.4 \times 0.0001}{0.0009 \times 0.014}$ x) $\frac{0.0058 \times 0.305}{0.0009 \times 0.01}$

Tobanlayaal iyo jajabyo

Tusaalooyin:

- (i) U qor tobanlayaashan jajabyo ahaan
 b) 0.04 t) 0.27
- $0.04 = \frac{4}{100} = \frac{1}{25}$ $0.27 = \frac{27}{100}$

(ii) U qor jajabyada soo socda tobanle ahaan

b) $\frac{5}{8}$

t) $\frac{7}{25}$

j) $3 \frac{1}{4}$

$$\begin{array}{r} 0.625 \\ 8 \overline{)50} \\ \underline{-48} \\ 20 \\ \underline{-16} \\ 40 \\ \underline{-40} \\ 00 \end{array}$$

$$\begin{array}{r} 0.28 \\ 25 \overline{)70} \\ \underline{-50} \\ 20 \\ \underline{-16} \\ 40 \\ \underline{-40} \\ 00 \end{array}$$

Sida awgeed $\frac{5}{8} = 0.625$

Sida awgeed $\frac{7}{25} = 0.28$

t) $3 \frac{1}{4} = \frac{13}{4} = \frac{13 \times 25}{4 \times 25} = \frac{325}{100} = 3.25$

ama

$$3 \frac{1}{4} = \frac{13}{4}$$

$$\begin{array}{r} 3.25 \\ 4 \overline{)13} \\ \underline{-12} \\ 10 \\ \underline{-8} \\ 20 \\ \underline{-20} \\ 00 \end{array}$$

Sida awgeed $3 \frac{1}{4} = 3.25$

Layli 10

1. U qor kuwan tobanlayaal ahaan :

- | | | | | |
|------------------------|-----------------------|---------------------|----------------------|----------------------|
| b) $\frac{1}{2}$ | t) $\frac{3}{5}$ | j) $\frac{1}{8}$ | x) $\frac{3}{20}$ | kh) $\frac{3}{4}$ |
| d) $\frac{1}{6}$ | r) $\frac{17}{40}$ | s) $\frac{7}{8}$ | sh) $\frac{1}{50}$ | dh) $\frac{4}{25}$ |
| c) $\frac{5}{16}$ | g) $\frac{21}{125}$ | f) $2 \frac{1}{2}$ | q) $3 \frac{3}{4}$ | k) $4 \frac{1}{5}$ |
| l) $12 \frac{11}{100}$ | m) $7 \frac{9}{1000}$ | n) $\frac{35}{105}$ | w) $101 \frac{3}{4}$ | h) $7 \frac{13}{25}$ |

$$h) 32 \frac{3}{8} \quad y) 3 \frac{7}{40} \quad a) 8 \frac{1}{8} \quad e) \frac{3}{7}$$

2. U qor kuwan jajabyo ahaan :

b) 0.1 b	t) 0.07	j) 0.008 d	x) 0.057	kh) 0.115
d) 0.8	r) 0.08	s) 0.075	sh) 0.007	dh) 0.245
c) 1.2 l	g) 0.05	f) 1.155	q) 13.041	k) 6.35
l) 9.00	m) 3.54	n) 6.05	w) 0.025	h) 7.123
y) 0.6	a) 0.03	e) 0.45	i) 1.42	

Jajabyo iyo boqolley

(i) U qor 26% Jajab ahaan:

$$26\% = \frac{26}{100} = \frac{13}{50}$$

(ii) U qor $\frac{3}{5}$ boqolley ahaan

$$\frac{3}{5} = \frac{3 \times 20}{5 \times 20} = \frac{60}{100} = 60\%$$

(iii) U tibaax $\frac{87}{125}$ boqolley ahaan :

$$\begin{aligned} \frac{87}{125} &= \frac{87}{125} \times 100 \\ &= \frac{348}{5} \\ &= 69 \frac{3}{5} \% \end{aligned}$$

(iii) Waa maxay 19% ka 87?

$$\begin{aligned} 19\% &= \frac{19}{100} \\ \therefore 19\% \text{ ka } 87 &= \frac{19}{100} \times 87 \\ &= \frac{19 \times 87}{100} \\ &= \frac{1653}{100} \\ &= 16.53 \end{aligned}$$

Layli 11

1. U qor jajabyadan tobanlayaal ahaan :

- | | | | | |
|-------------------|----------------------|---------------------|---------------------|---------------------|
| b) $\frac{4}{5}$ | t) $\frac{11}{20}$ | j) $\frac{14}{50}$ | x) $\frac{19}{100}$ | kh) $\frac{17}{25}$ |
| d) $\frac{3}{4}$ | r) $\frac{19}{20}$ | s) $\frac{57}{100}$ | sh) $\frac{43}{50}$ | dh) $\frac{2}{5}$ |
| c) $\frac{1}{2}$ | g) $\frac{13}{20}$ | f) $\frac{45}{60}$ | q) $\frac{27}{30}$ | o) $\frac{44}{55}$ |
| p) $\frac{7}{35}$ | q) $\frac{138}{300}$ | | | |

2. U qor boqolleydan jajabyo ahaan oo fududee:

- | | | | |
|---------|---------|--------|--------|
| b) 15% | t) 72% | j) 13% | x) 80% |
| kh) 56% | d) 8% | r) 71% | s) 96% |
| sh) 35% | dh) 22% | c) 60% | g) 57% |
| f) 29% | q) 26% | o) 18% | |

3. U qiimee boqolley ahaan

- | | | |
|----------------|-----------------|---------------|
| b) 59 ka 250? | t) 150 ka 700? | j) 9 ka 2 00? |
| x) 178 ka 500? | kh) 180 ka 720? | d) 18 ka 72? |

4. Qiimee:

- | | | |
|----------------|----------------|----------------|
| b) 15% ka 18? | t) 90% ka 200? | j) 35% ka 720? |
| x) 81% ka 500? | kh) 15% ka 20? | d) 45% ka 60? |

Tobanlayaal iyo Boqolley

Tusaalooyin:

(i) U qor tobanlayaasha soo socda boqolley ahaan

- | | | |
|---------|----------|----------|
| b) 0.58 | t) 0.071 | j) 0.004 |
|---------|----------|----------|

$$b) 0.58 = (0.58 \times 100) = \frac{58}{100} = x \text{ } 100 \% = 58\%$$

$$t) 0.071 = \frac{71}{1000} \times 100 = 7.1 \%$$

$$j) 0.004 = \frac{4}{1000} \times 100 = 0.4 \%$$

ii) U qor boqolleyda tobanlayaal ahaan

- | | | |
|-------|---------|--------|
| b) 9% | t) 3.6% | j) 46% |
|-------|---------|--------|

$$b) 9\% = \frac{9}{100} = 0.09$$

$$t) 3.6\% = \frac{36}{100} = 0.036 \text{ (u rar dhibicda tobanlaha laba rug dhinaca bidix).}$$

$$j) 46\% = \frac{46}{100} = 0.46$$

(iii) b) Waa maxay boqolkii 40 waa 24

$$\frac{24}{40} = \frac{3}{5} = \frac{3 \times 20}{5 \times 20} = \frac{60}{100} = 60\%$$

t) Waa maxay boqolkii 80 waa 20

$$\frac{20}{80} = \frac{1}{4} = \frac{1 \times 25}{4 \times 20} = \frac{25}{100} = 25\%$$

(iv) haddii 20% ee walaxi ay tahay 4. waa maxay waxa idil?

$$20\% = 4$$

$$1\% = \frac{4}{20} = \frac{1}{5} = 0.2$$

$$\text{waxa idil} = 100\% = 0.2 \times 100 = 2$$

Layli 12

1. U tibiaax tobanlayaashan boqolley ahaan

b) 0.9	t) 0.5	j) 0.1	x) 0.8	kh) 0.7
d) 0.26	r) 0.37	s) 0.85	sh) 0.99	dh) 0.25
c) 0.02	g) 0.06	f) 0.012	q) 0.25	k) 0.053
l) 0.006	m) 0.152	n) 1.956	w) 7.56	h) 0.945

2. U tibiaax boqolleydan tobanlayaal ahaan :

b) 60%	t) 45%	j) 55%	x) 10%	kh) 85%
d) 4.2%	r) 7.56%	s) 4.5%	sh) 112.6%	j) 2150%
dh) 0.56%	c) 25%	g) 100%	f) 520%	q) 2.6%

3. Waa maxay boqolleyda:

b) 5 ka 3?	t) 20 ka 5?	j) 35 ka 28 d
x) 50 ka 10	d) 16 ka 12	r) 20 ka 11 g
s) 50 ka 37	sh) 25 ka 13	

4. Haddii : b) 20% ee walaxi ay tahay 15, waa maxay waxa idil?

- t) 20% ee walaxi ee ay tahay 16 waa maxay waxa idil?
 j) 6% ee walaxi waa 15, waa maxay waxa idil?

Boqolleyda korodhka iyo isdhimidda

Tusaalooyin:

- (i) 55 ku kordhi 12%

$$\text{Korodhka} = \frac{12}{100} \times 55 = \frac{660}{100} = 61.6$$

$$\text{Wadarta cusub} = 55 + 6.60 = 61.6$$

$$\begin{aligned} \text{ama Wadarta cusub} &= 112\% \text{ of } 55 \\ &= 1.12 \times 55 = 61.6 \end{aligned}$$

- (ii) 85 ka dhin 15%

$$\text{dhimidda} = \frac{15}{100} \times 85 = 12.75$$

$$\text{Wadarta cusub} = 85 - 12.75 = 72.25$$

$$\begin{aligned} \text{ama Wadarta cusub} &= 85\% \text{ ka } 85 \\ &= 0.85 \times 85 = 72.25 \end{aligned}$$

- (iii) Tirada ardayda dugsi waxa ay ka kordheen 800 ilaa 890. Raadi boqolleyda korodhka.

$$\text{Tirada asalka} = 800$$

$$\text{Tirada cusub} = 890$$

$$\begin{aligned} \text{Korodhka} &= \text{Tirada asalka} + \text{Tirada cusub} \\ &= 890 - 800 = 90 \end{aligned}$$

$$\begin{aligned} \text{boqolleyda korodhka} &= \frac{\text{korodhka}}{\text{Tirada asalka}} \times 100 \\ &= \frac{90}{800} \times 100 = 11.25\% \end{aligned}$$

- (iv) Sicirka badeecad waa sh 150,000. Waxa lagu kordhiyay 20%. Maxa uu noqonayaa sicirka cusub ee badeecadda?

$$\text{Boqolleyda korodhka} = \text{sh } 150\,000$$

$$\text{Korodhka dhabta ah} = 20\%$$

Korodhka dhabta ah = 20% ka 150,000

$$\text{Korodhka dhabta ah} = \frac{20}{100} \times 150\,000$$

$$= \text{sh } 30\,000$$

Sicirka cusub = Sicirka asalka + Korodhka dhabta ah

$$= 150\,000 + 30\,000$$

$$= 180\,000$$

Layli 13

1. 350 ku kordhi

b) 10% t) 45% j) 75% x) 95% kh) 60%

2. 450 ku kordhi:

b)15% t)25% j)35% x)45% kh) 55%

3. 720 ka dhin

b) 25% t) 45% j) 65% x) 80% kh) 95%

4. 540 ka dhin:

b)5% t)16% j) 20% x)28% kh) 48%

5. Raadi boqolleyda korodhka marka tirada 650 ay u korodho:

b)740 t)700 j)790 x) 800 kh) 860
d) 900 r)750 s)950 sh) 1300 dh) 1000

6. Raadi boqolleyda isdhinka marka tirada 8500 isu dhinto ilaa:

b) 8000 t) 7200 j) 6550 x) 3250
kh) 5820 d) 4596 r) 8050 s) 7950
sh) 6920 dh) 2560 c)100 g) 565

7. Ka dib 35% biyaha taangiga markii ay habeenkii oo dhan ka tifqeen, waxa ku haray 940 litir. Immisa litir oo biyo ayaa uu taangu habay (siidaayay)?

8. Nin beeraley ayaa soo goostay 2535 tan oo miro ah . waxa uu iska iibiyay 15% oo ka mid. Miraha u haray waxa ay ahaayeen 35% oo galley ah, 20% oo digir ah iyo inta hartay oo mesego ah.
Immisa tan oo misego ah ayaa u hartay?
9. Nofember 2001, Iskaashato ayaa xoolaheeda ka kordhay min 7 000 ilaa 25 000.
Xisaabi boqolleyda korodhka xoolaha.
11. Warshad kalluun ayaa soo saartay 300 000 gasacad oo kaluun ah bishii ugu horeysay. Bishii labaad wax soo saarka 8% ayaa uu hoos u dhacay ka dibna mar kale 8% ayaa uu kor u kacay bishii saddexaad. Immisa gasacadood ayaa la soo saaray bisha saddexaad?
12. 1999 Tirada dadweynaha magaalo waxa uu ahaa 78 00. Toban sano ka dib tirada dadweynaha waxa ay ahayd 115 000. U tibaax waxa ku korodhay tirada asalka ah boqolley ahaan.

3 URUR



Naqtiin

1. Qor kutirsanayaasha urur kasta oo ka mid ah ee ururada soo socda:
 - b) Ururka waddamada Bariga Afrika.
 - t) Ururka degmooyinka gobolka Bay.
 - j) Ururka tirooyinka idil ee ka yar toddobo.
 - x) Urrurka tirooyinka kisiga ee u dhexeeya 6 iyo 16.
 - kh) Ururka xarfaha erayga "Soomaaliya".
2. Qor ururadan adiga oo sifaynaaya kutirsanayaashooda .
 - b) $B = \{5, 10, 15, 20, 25, 30, 35\}$
 - t) $L = \{12, 15, 18, 21\}$
 - j) $R = \{\text{Shabelle, Juba}\}$
 - x) $H = \{a, e, i, o, u\}$
3. U qor ururada soo socda habka taxidda oo magac u bixi urur kasta .
 - b) Ururka xarfaha erayga " xisaab ".
 - t) Ururka tirooyinka mutuxan ee ka yar 23.
 - j) Ururka dhufsanayaasha 2 ee ka yar 12.
 - x) Ururka waddamada Jaamacada Carabta.
4. Kee urur maran ah ururadan? U qor jawaabta qaabka ah $X = \{ \}$
 - b) $A = \{\text{Saddexagallada leh afar dhinac}\}$
 - t) $R = \{\text{Tiro dhaban oo ka yar 1}\}$
 - j) $C = \{\text{Arday da'diisa 6 sanno ah}\}$
 - x) $M = \{\text{Tiro dhaban ah oo ka yar 16}\}$
5. Ururadan soo socda kuwee ah ururo kooban kuweena ah ururaan koobnayn?
 - b) Ururka magaalo madaxda Afrikada Bari.
 - t) Ururka dadweynaha Geeska Afrika.
 - j) Ururka muslimiinta adduunka.
 - x) Ururka dhufsanayaasha 3.
 - kh) Ururka tirooyinka dhabanka ee u dhexeeya 2 iyo 238.
6. Haddii $\{1, 2, m, 5\} = \{2, 4, 1, 5\}$ waa maxay qiimaha m?

7. Haddii $X = \{2, 3, 5, 8\}$ oo Y ay tahay godadka tirooyinka 835. X iyo Y ma iskudhigmaan?

Hormo urur

Sawirka waxa uu muujinaya qoys ka kooban aabe, hooyo, labo wiil iyo saddex gabdhood. Qoyska waxa lagu taxi karaa urur :

$A = \{\text{Cabdi, Faadumo, Xuseen, Cali, Aamino, Seynab, Casha}\}$

Ururka wiilasha waxa urur ahaan loogu qori karaa sida soo socota.

$B = \{\text{Xuseen, Cali}\}$

Ururka gabdhaha waxa urur ahaan loogu qori karaa sida soo socota

$G = \{\text{Aamino, Seynab, Casha}\}$

Isbarbardhig kutirsanayaasha ururrada A iyo B . Kutirsane walba ee ururka B waa kutirsane ururka A . Markaa B waa hormo urur A , waxaana loo qoraa $B \subset A$. Waxa A ku jira kutirsanayaal qaarkood oo aan ka tirsanayn B . A ma aha hormo urur B oo waxaana loo qoraa $A \not\subset B$.

Ururka G waa hormo urur A ,

\therefore Kutirsane kasta ee ururka G waa kutirsane ururka A waxaana loo qora $G \subset A$

Tusaalooyin:

(i) Haddii $B = \{a, b, c, d\}$ $T = \{d, e\}$ $J = \{b, c\}$

b) ma u tahay $B \subset T$?

t) ma u tahay $J \subset B$?

b) $B = \{a, b, c, d\}$ $T = \{d, e\}$

b) MAYA; Maxa yeelay a, b iyo c waa kutirsanayaal B laakin ma aha kutirsanayaal T .

t) HAA; Maxaa yeelay kutirsane walba ee J oo ah, b iyo c waa kutirsanayaal B .

(ii) Sheeg in weeraha yihiin Run ama Been

Haddi X ay tahay ururka xarfaha ereyga kamil oo Y ay tahay ururka xarfaha il.

b) $X \subset Y$ t) $Y \subset X$ j) $X \cap Y \neq \emptyset$ x) $Y \not\subset X$

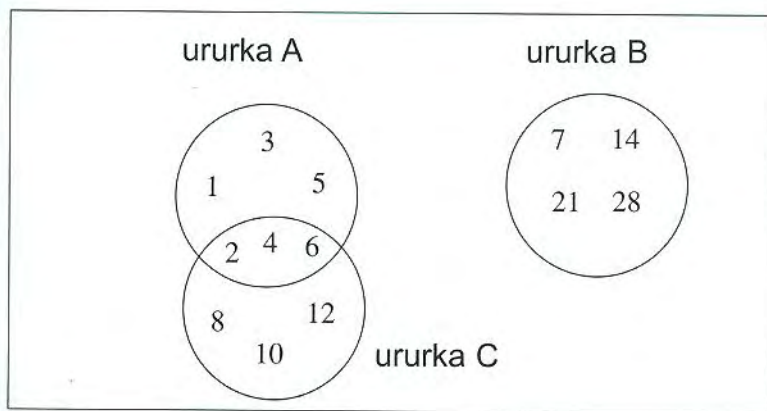
$X = \{k, a, m, i, l\}$ $Y = \{i, l\}$

b) Waxa jira kutirsanayaal Ururka X ee aan ku jirin ururka Y . Been.

t) Kutirsane kasta ee ururka Y waa kutisane ururka X . Run

j) Kutirsanayaasha X kuma wada jiraan Y . Run

x) Kutirsane kasta ee ururka Y waa kutisane ururka X . Been



Ururka A = { 1,2,3,4,5,6}

Ururka C = { Lixda hore ee dhufsanayaasha 2}

Ururka C = {2,4,6,8,10,12}

∴ $A \cup C = \{1,2,3,4,5,6,8,10,12\}$

Xusuuso in 2,4 iyo 6 ay yihiin kutirsanayaal Ururka A iyo Ururka C. Hase yeeshee , lagu ma qorin $A \cup C$ labo jeer. Isu tagga ururada kuma jiraan kutirsanayaal soo noqnoqda.

Tusaalooyin:

(i) Haddii $Q =$ ururka tirooyinka idil ee u dhexeeya 5 iyo 10

$Q =$ ururka tirooyinka idil ee ka yar 8

Raadi: b) $O \cup Q$ t) $Q \cup O$

$Q = \{6, 7, 8, 9\}$

$O = \{1, 2, 3, 4, 5, 6, 7, 8\}$

b) $Q \cup P = \{1, 2, 3, 4, 5, 6, 7, 8, 9\}$

t) $Q \cup O = \{1, 2, 3, 4, 5, 6, 7, 8, 9\}$

Ogow in $O \cup Q = Q \cup O$ isla markaasna in kutirsanayaasha ay wadaagaan ee 6,7,8 aan la qorin labo jeer .

(ii) Haddii $L = \{3, 5, 7\}$

$M = \{7, 8, 10\}$

Raadi: b) $L \cup M$ t) $M \cup L$

b) $L \cup M = \{3, 5, 7\} \cup \{7, 8, 10\} = \{3, 5, 7, 8, 10\}$

t) $M \cup L = \{7, 8, 10\} \cup \{3, 5, 7\} = \{7, 8, 10, 3, 5\}$

Ogow in $L \cup M = M \cup L$ isla markaasna in kutirsanaha ay wadaagaan 7 aan la qorin labo jeer.

Layli 2

1. Haddii $X = \{1, 3, 4, 5\}$; $Y = \{1, 4, 7\}$; $A = \{1, 4, 5\}$ oo ay $F = \{0, 2, 3, 7\}$ Tibaax;

b) $X \cup Y$

t) $X \cup F$

j) $A \cup F$

x) $X \cup A$

kh) $Y \cup F$

d) $Y \cup A$

2. Haddii ururka $D = \{ \text{Isirada mutuxan ee } 30 \}$

ururka $E = \{ \text{ururka tirooyinka idil ee u dhexeeya } 5 \text{ iyo } 8 \}$

Tibaax

b) $D \cup E$

t) $E \cup D$

3. Min guuri oo dhammeystir tusaha.

ururka C	ururka G	ururka $C \cup G$
$\{1, 2, 3, 6\}$	$\{2, 3, 5\}$	
$\{a, b\}$	$\{c, d, e\}$	
Xarfaha ereyga	Xarfaha ereyga "Jamal"	
Isirada 6	Isirada mutuxan ee 6	

4. Buuxi meelaha bannaan

b. $\{1, 3\} \cup \{ _, _ \} = \{1, 3, 4, 5\}$

t. $\{a, b\} \cup \{t, c, _, _ \} = \{a, b, t, c, n\}$

5. Haddii $A = \{1, 2\}$, $B = \{3, 4\}$ oo $C = \{5, 6, 7\}$, raadi:

b) $A \cup B$

t) $B \cup C$

j) $A \cup C$

x) $(A \cup B) \cup C$

kh) $A \cup (B \cup C)$

d) $(C \cup A) \cup B$

6. Raadi isu tagga lammaanayaasha ururada

b) $H = \{a\}$, $L = \{a, b, c\}$

t) $N = \{\text{ari, geel, lo'}\}$, $O = \{\text{dooli, mukulaal}\}$

j) $J = \{\text{Shaqallada af soomaaliga}\}$, $K = \{\text{Lixda hore ee shibanayaasha af soomaaliga}\}$

x) $T = \{5, 10, 15\}$, $R = \{15, 20\}$

Dhextaalka ururrada

Ururka A = { Lixda hore ee tirooyinka Mutuxan }

∴ Ururka A = {2,3,5,7,11,13}

Ururka B = { siddeedda ugu horreysa ee tirooyinka mutuxan }

∴ Ururka B = {0,1,2,3,4,5,6,7,}

Ururka A iyo B waxa ay leeyihiin kutirsanayaal ay wadaagaan oo kala ah 2,3,5 iyo 7

Ururka $A \cap$ Ururka B = {2,3,5,7}

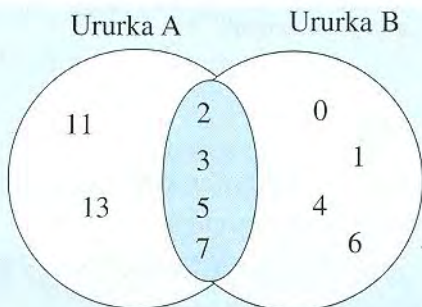
Waxa aan ugu dhawaaqayna "Ururka A dhextaal Ururka B waa {2,3,5,7}

Dhextaalka labo urur waxa uu ka sameysmaa kutirsanayaasha ay wadaagan labada urur.

Dhextaalka ururka A iyo ururka B waxa uu ka kooban yahay kutirsanayaasha ururka A ee isla markaasna ah kutirsanayaal B, waxaana loo qoraa $A \cap B$.

Summada \cap waxa ay u taagan tahay dhextaal.

Jaantuska waxa uu muujinaya $A \cap B = \{2,3,5,7\}$



Tusaalooyin:

(i) Ururka M = {2, 4, 6, 8, 10, 12} oo Ururka N = {3, 6, 9, 12, 15}. Sheeg $M \cap N$.

Si loo helo $M \cap N$ soo saar kutirsanayaasha ay wadaagaan M iyo N.

Kutirsanayaasha ay wadaagaan waa 6 iyo 12.

∴ $M \cap N = \{6, 12\}$

(ii) Ururka A = { Tirooyinka idil ee u dhexeeya 2 iyo 6 }

Ururka B = { Tirooyinka tirsiimo ee ka yar 5 }

sheeg $A \cap B$ iyo $B \cap A$.

Ururka A = {3, 4, 5}

Ururka B = {1, 2, 3, 4}

$A \cap B = \{3, 4, 5\} \cap \{1, 2, 3, 4\}$

= {3, 4}

$$B \cap A = \{1, 2, 3, 4\} \cap \{3, 4, 5\}$$

$$= \{3, 4\}$$

Ogow in $A \cap B = B \cap A$

(iii) Ururka $L = \{1, 3, 5, 7\}$, $M = \{ \text{Tirooyinka mutuxan ee u dhexeeya 2 iyo 11} \}$ oo Ururka $N = \{ \text{Isirada mutuxan ee 6} \}$

Raadi b) $L \cap M$

t) $M \cap L$

j) $M \cap N$

x) $N \cap M$

kh) $L \cap N$

d) $N \cap L$

$$L = \{1, 3, 5, 7\}$$

$$M = \{3, 5, 7\}$$

$$N = \{2, 3\}$$

b) $L \cap M = \{3, 5, 7\}$

t) $M \cap L = \{3, 5, 7\}$

j) $M \cap N = \{3\}$

x) $N \cap M = \{3\}$

kh) $L \cap N = \{3\}$

d) $N \cap L = \{3\}$

(iv) Ururka $A = \{2, 4, 6\}$ oo Ururka $B = \{1, 3, 5\}$. Raadi $A \cap B$ iyo $B \cap A$.

$A \cap B = \{ \}$. Ma jiraan kutirsanayaal ay wadaagan.

$B \cap A = \{ \}$ ama \emptyset .

Ogow in $A \cap B = B \cap A$

Haddii dhammaan kutirsanayaasha ururka A ay ka duwan yihiin kutirsanayaasha ururka B, Markaa A iyo B waxa la yiraahdaa ururro aan isku xirnayn.

Haddii A iyo B ay yihiin labo urur oo $A \cap B = \{ \}$ ama \emptyset markaa A iyo B waa ururro aan isku xirnayn.

Layli 3

1. Min guuri oo dhammeystir tusaha

Ururka X	Ururka Y	Ururka $X \cap Y$
$\{13, 5, 6, 11\}$	$\{2, 3, 4, 5\}$	
$\{a, b, c, d, e, f, \}$	$\{h, e, l, i, d\}$	
$\{3, 0, 6, 4\}$	$\{7, 2, 1, 5\}$	
$\{2, 4, 6, 8\}$	$\{6, 2, 8, 4\}$	
$\{2, 3, 35, 1\}$	$\{3, 5\}$	

2. Ka soo qaad in $X = \{2,3,5,7,9\}$ oo $Y = \{4,2,5,6,12\}$

b) qor $X \cap Y$

t) Sifee $X \cap Y$

3. Ururka $C = \{\text{Tirooyinka idil ee u dhexeeya 5 iyo 9}\}$

Ururka $S = \{\text{Tirooyinka idil ee ka yar 5}\}$

Qor kuwaan adiga oo taxaya kutirsanayaasha

b) C

t) S

j) $C \cap S$

4. Ururka $L = \{\text{dhufsanayaasha 3 ee ka yar 30}\}$

Ururka $M = \{\text{dhufsanayaasha 5 ee ka yar 30}\}$

Sheeg b) $L \cap M$

t) $M \cap L$

5. Sheeg dhextaalka lammaanayaasha ururada soo socda

b) $A = \{2, 4,6,8,10\}$,

$B = \{12, 14,16,18\}$

t) $C = \{\text{liin, hilib, bariis, baradhe, kalluun}\}$, $D = \{\text{bariis, mesego, liin, kalluun}\}$

c) $M = \{\text{Baradho, baabay, galley}\}$, $N = \{\text{galley, Baradho, baabay}\}$

d) $H = \{\text{Khad, qallin, qallin qori, waraaq}\}$ $F = \{\text{fatuuro, gaari bas, tariin, taksi}\}$

6. Ururradan lammaanayaash kuwee ah ururro aan isku xirnayn?

b) $A = \{1, 3,5,7,9, 11\}$,

$B = \{3, 6,9\}$

t) $X = \{\text{galley, Baradho, Bariis, muus}\}$, $Y = \{\text{suuf, kafee, shaah}\}$

j) $E = \{\text{Labajibbaarane, laydi, saddexagal}\}$ $F = \{\text{Guri, jiko, sagxad}\}$

x) $J = \{\text{waraaq, qallin, Khad, miis}\}$, $K = \{\text{arday, qallin, waraaq, digir}\}$

kh) $U = \{\text{libaax, maroodi, ari}\}$, $W = \{\text{xayawaanka cunna caws}\}$

4 JIBBAARRADA



Naqtiin

1. Fududee:

b) $d^4 \times d^2$

x) $a^7 \div a^3$

r) $x^8 \div x^5$

t) $m^3 \times m^4$

kh) $b^3 \div b^2$

s) $a^5 \div a$

j) $l^3 \times l^2 \times l^4$

d) $n^{12} \div n^3$

sh) $x^{10} \div x^9$

2. Fududee:

b) $(x^4)^2$

x) $(xy^3)^5$

t) $(a^3)^3$

kh) $(abc)^5$

j) $(a^2b)^3$

d) $(b^8)^3$

3. Fududee:

b) $(\frac{x}{y})^5$

x) $(\frac{a}{b^2})^4$

t) $(\frac{a^2}{y})^2$

j) $(\frac{x^2}{y})^3$

4. Fududee:

b) $(2x^2)^3(2x^5)$

x) $\frac{(12m^2n5)(-5mn^3)}{15m^3n^2}$

t) $\frac{(81b^2)(3a^2b)}{12a^3}$

kh) $\frac{(81b^2)(3a^2b)}{(-6x^3)}$

j) $\frac{(3x^2y^5)^3}{9xy^2}$

d) $\frac{32m^{10}n^3}{(8m^5)(mn)}$

5. Fududee:

(b) $127 \div 3a^3$

(t) $21x^2y^5 \div 7xy$

(j) $8a^2 \div 8a$

Jibbaar eber ah

Jibbaarrada sidaa oo kale waxa lagu magacaabaa muujiyeyaal iyo jibbaarro.

Maadama $\frac{x^2}{x^2} = x^{2-2} = x^0$

oo

$\frac{x^2}{x^2} = \frac{x \times x}{x \times x} = 1$

markaa $\frac{x^2}{x^2} = x^0 = 1$

Guud ahaan:

Haddii $x \neq 0$ markaa $x^0 = 1$

Cutubkii Iaad qaybta salalka, tirada waxa loo qoray jibbaar ahaan.

malyanaad	Boqol kumaadyo	Toban kumaadyo	kumaadyo	Boqolaadyo	Tobanaadyo	kowaadyo	Tobaneedyo
10^6	10^5	10^4	10^3	10^2	10^1	10^0	10^{-1}



Sii wadidda naqshadda waxa aan gaarayna in joog u taxa kowaadyada noqdo.
 $10^0 = 1$

Sii wadidda naqshadda waxa aan gaaraynaa in joog u taxa tobneedyadu noqdo 10^{-1} oo
 $10^{-1} = \frac{1}{10}$

Jibbaar taban

maadaama $\frac{x^2}{x^5} = x^{2-5} = x^{-3}$ iyo $\frac{x^2}{x^5} = \frac{x \times x}{x \times x \times x \times x \times x} = \frac{1}{x^3}$

$\therefore x^{-3} = \frac{1}{x^3}$

Guud ahaan:

Haddii $x \neq 0$ markaa $x^{-a} = \frac{1}{x^a}$

Tusaalooyin:

- (i) U fududee tibaax aan ku jirin jabbaar: b) 2^0 t) $(-3)^0$ j) 4^{-1} x) 2^{-3}

b) $2^0 = 1$ t) $(-3)^0 = 1$ j) $4^{-1} = \frac{1}{4^1} = \frac{1}{4}$ x) $2^{-3} = \frac{1}{2^3} = \frac{1}{8}$

- ii) U fududee tibaax aan ku jirin jabbaar

b) $\left[\frac{-2}{3}\right]^0$ t) $\left[\frac{3}{5}\right]^{-2}$

b) $\left[\frac{-2}{3}\right]^0 = 1$

t) $\left[\frac{3}{5}\right]^{-2} = \left[\frac{1}{\frac{3}{5}}\right]^2 = \frac{1}{\frac{9}{25}} = \frac{25}{9}$

j) $3^{-1} + 2^{-2}$

$$3^{-1} + 2^{-2} = \frac{1}{3} + \frac{1}{2^2} = \frac{1}{3} + \frac{1}{4} = \frac{4+3}{12} = \frac{7}{12}$$

(iii) Fududee: $\frac{(x^2y^3)^3}{(xy^2)(x^3y^6)}$

$$\frac{(x^2y^3)^3}{(xy^2)(x^3y^6)} = \frac{x^4y^6}{x^4y^8} = x^0y^{-2} = y^{-2} \text{ ama } \frac{1}{y^2}$$

Layli 1

1. Fududee:

b) $(x^3)(x^{-5})$

t) $(a^{-1})(a^8)$

j) $(y^0)(y^4)$

x) $(b^{-1})(b^{-3})$

kh) $(a^{10})(a^3)(a^{-5})$

d) $(x)(x^0)$

r) $(b^{-5})(b^5)$

s) $(m)(m^{-1})(m^0)$

2. Fududee:

b) $x^{10} \div x^5$

t) $b^9 \div b^{12}$

j) $a^0 \div a^3$

x) $x^{-3} \div x^2$

kh) $m^{-5} \div m^0$

d) $n^4 \div n^{-3}$

r) $0 \div y^5$

s) $m^{-8} \div m^{-4}$

3. Qiime:

b) 4^0

t) 2^{-1}

j) $(-3)^0$

x) $10-1$

kh) 3^{-2}

d) 10^0

r) 4^{-2}

s) 2^{-3}

4. Fududee:

b) $(3x^5)(5x^{-2})$

t) $(a^2b^5)(a^3b^{-8})$

j) $(2y^5)(3y^{-5})$

x) $(x^{10})(x^{-3})(x^{-5})$

kh) $(3m^{-1})^2$

d) $(3a^2)(5a^{-8})$

r) $(m^{2n})(m^{5n-1})$

s) $(2a^5b^{-3})^3$

sh) $(x^{-5}y^{-2})^{-1}$

dh) $(5xy^{-1})(7x^3y^{-1})$

c) $(7m^3)(m^{-5}n^{-2})$

g) $(5a^{-3})(3a^3)$

5. Fududee:

b) $(a^{-3}) \div (a^{-5})$

t) $(12x^5) \div (4x^{10})$

j) $(24b^{-5}) \div (6b^5)$

x) $(m^2n) \div (m^5n^0)$

kh) $(a^{12}) \div (a^{15}) \times (a^3)$

d) $(15^4b^5) \div (5a^2b^7)$

r) $(b^0) \div (b^{-4})$

s) $(y^4y^2) \div (y^{10})$

sh) $(4x^{-2})^2$

dh) $(3x^{-5})^{-1} (3x^2)$

c) $\frac{(12b^2)(8b^{-4})}{6b^{-10}}$

g) $(2a^3)^{-3} (4a^{-5})$

6. Qiimee:

b) $50 + 5^{-1}$

t) $3^{-1} + 4^{-1}$

j) $(5-1)^2$

x) $[(4^{-3})(4^2)]^2$

kh) $(2^{-1})^{-1}$

d) $(\frac{1}{4})^{-1}$

r) $(\frac{1}{4})^0$

s) $5^{-1} + 2^{-2}$

sh) $(\frac{1}{10})^{-1}$

dh) 10^{-2}

c) $(\frac{1}{3})^{-2}$

g) $(10^3)(10^{-5})$

Qormo sayniseed

Tirooyinka sida 10, 1000, 10 000, 1 000 000 waxa loo tibaaxi karaa jibbaar 10.

Tusaalooyin:

$$10\ 000 = 10 \times 10 \times 10 \times 10 = 10^4$$

Tirooyinka kale waxa loo qori karaa taranka laba tiro oo middood tahay jibbaar.

$$1. \ 500\ 000 = 5 \times 100\ 000 \\ = 5 \times 10^5$$

$$2. \ 3\ 000 = 3 \times 1\ 000 \\ = 3 \times 10^3$$

$$3. \ 2\ 300\ 000 = 2.3 \times 1\ 000\ 000 \\ = 2.3 \times 10^6$$

Tirooyinka 5×10^5 , 3×10^3 iyo 2.3×10^6 dhammaantood waxa ay u qoran yihiin sansaanka $A \times 10^n$. Ogow in A ay tahay tiro u dhexaysa 1 ilaa 10 oo n waa tiro idil. Tirooyinkan oo kale waxa la yiraahdaa waxa loo qoray sansaan beegaal ah.

Maxa ay muhiim u tahay adeegsiga sansaanka beegaalka ah ?

- b) Saynisyahaannada ayaa adeegsada marka la qorayo qiimayaasha aad u weyn iyo kuwa aad u yar .
- t) sansaan beegaal ah waxa uu fududeeyaa isbarbardhigidda qiimayaasha aad u waaweyn iyo kuwa aadka u yar-yar .

(i) U qor kuwan sansaanka beegaalka ah:

b) 7 000

t) 560

$$7\ 000 = 7 \times 1\ 000 \\ = 7 \times 10^3$$

$$560 = 5.6 \times 100 \\ = 5.6 \times 10^2$$

j) 840 000

x) 5 300 000

$$840\ 000 = 8.4 \times 100\ 000$$

$$= 8.4 \times 10^5$$

$$5\ 300\ 000 = 5.3 \times 1\ 000\ 000$$

$$= 5.3 \times 10^6$$

(ii) U qor tirooyinka soo socda sansaanka caadiga ah:

b) 5×103

$$5 \times 103 = 5 \times 1\ 000$$

$$= 5\ 000$$

t) 3.4×106

$$3.4 \times 106 = 3.4 \times 1\ 000\ 000$$

$$= 3\ 400\ 000$$

j) 7.5×105

$$7.5 \times 105 = 7.5 \times 100\ 000$$

$$= 750\ 000$$

x) 2.1×102

$$2.1 \times 102 = 2.1 \times 100$$

$$= 210$$

Layli 2

1. U qor tirooyinkan sansaanka beegaalka ah:

b) 80 000

t) 300 000

j) 630 000

x) 70

kh) 9 000 000

d) 590

r) 3600

s) 100 000

sh) 11 000 000

dh) 35

c) 18 000 000

g) 850 000

f) 12

q) 230 000 000

k) 16 000 000 000

2. U beddel tirooyinkan sansaanka caadiga ah :

b) 5×10^2

t) 9×10^6

j) 3.7×10^8

x) 6.2×10^7

kh) 4.5×10^9

d) 3.3×10^5

r) 7×10^1

s) 7.6×10^3

sh) 1.1×10^1

dh) 3×10^5

c) 2×10^7

g) 8.8×10^8

f) 4.3×10^6

q) 6×10^4

k) 7×10^1

Qormo sayniseedka tobanlayaasha

Tirooyinka tobanlayaasha ah waxa loo tibaaxi karaa jibbaar 10.

0.0002, 0.00001, 0.0000005 waxa loogu tibaaxi karaa sansaanka beegaalka sida soo socota:

$$.0002 = \frac{2}{10000} = \frac{2}{10^4} = 2 \times 10^{-4}$$

$$0.00001 = \frac{1}{100000} = \frac{1}{10^5} = 1 \times 10^{-5}$$

$$0.000005 = \frac{5}{1000000} = \frac{5}{10^7} = 5 \times 10^{-7}$$

2×10^{-4} , 1×10^{-5} , 5×10^{-7} dhammaatood waxa loo qoray sansaanka beegaalka ah, $A \times 10^n$, halka A ay tahay tiro u dhexeysa 1 ilaa 10 oo n ay tahay abyoone

Ogow in tirooyinka idil ee n ay tahay abyoone togan, laakiin tirooyinka tobanlayaasha ee n waa abyoone taban.

Tusaalooyin:

(i) U qor tirooyinkan tobanlaha ah sansaanka beegaalka:

b) 0.0005

$$0.0005 = \frac{5}{10000} = \frac{5}{10^5} = 5 \times 10^{-5}$$

t) 0.057

$$0.057 = \frac{5.7}{100} = \frac{5.7}{10^2} = 5.7 \times 10^{-2}$$

j) 0.00036

$$0.00036 = \frac{3.6}{10000} = \frac{3.6}{10^4} = 3.6 \times 10^{-4}$$

(ii) U qor tirooyinkan tobanlayaal ahaan:

b) 8×10^{-8}

$$8 \times 10^{-8} = \frac{8}{10^8} = \frac{8}{100000000} = 0.00000008$$

t) 4.3×10^{-6}

$$4.3 \times 10^{-6} = \frac{4.3}{10^6} = \frac{4.3}{1000000} = 0.0000043$$

j) 6.2×10^{-3}

$$6.2 \times 10^{-3} = \frac{6.2}{10^3} = \frac{6.2}{1000} = 0.0062$$

Layli 3

1. U tibaax tirooyinkan tobanlayaasha ah sansaanka beegaalka:

b) 0.003

t) 0.4

j) 0.0051

x) 0.00051

kh) 0.0083

d) 0.1

r) 0.00001

s) 0.81

sh) 0.7

dh) 0.00003

c) 0.00000058

g) 0.0000005

f) 0.00012

q) 0.02

k) 0.00006

l) 0.5

m) 0.0011

n) 0.00009

w) 0.00007

h) 0.00088

2. U qor tirooyinkan tobanle ahaan:

b) 5×10^{-1}

x) 8×10^{-3}

r) 2.4×10^{-8}

dh) 1.1×10^{-1}

f) 1.3×10^{-13}

l) 4×10^{-4}

t) 3.2×10^{-5}

kh) 4.2×10^{-2}

s) 3×10^{-6}

c) 3.3×10^{-3}

q) 2.1×10^{-2}

j) 6.3×10^{-2}

d) 2.3×10^{-6}

sh) 8.2×10^{-9}

g) 6×10^{-6}

k) 7.5×10^{-5}

Logaridam

Logaridam waxa la adeegsanayey ilaa qarnigii ugu dambeeyay si ay fudeed uga dhigto xisaabinta adag. U adeegsigeeda hadafkan waxa uu yaraaday markii kalkuleytarrada la soo saaray.

Buug tusayaasha logaridam ee sal 10 waxa markii ugu horreysay soo saaray Heneri Bigas asaga oo raacaya shaqadii Joon Nabiyer

Logaridam iyo jibbaarada 10

Tusaha waxa uu muujinayaa dhufsanayaasha 10 oo leh sansaan jibbaarro leh.

Joog u taxa ugu dambeeya waxa uu sheegaya jabbaarka 10 in la saaro ay tahay.

tiro	Sansaan jibbaar	Jibbaarka 10
10 000	10^4	4
1 000	10^3	3
100	10^2	2
10	10^1	1
1	10^0	0

10 000 waa 10 la kor saaray jibbaar 4 ah

Logaridamka sal 10 ee 1000 waa 3.

Logaridamka sal 10 ee 100 waa 2.

Logaridamka 10 waa 1.

Logaridamka 1 waa 0

Logaridamka tiro waa jibbaarka ay tahay in la saaro 10 si ay u soo baxdo tiradaa. Haddaba logaridam waa erey kale oo jibbaarka leeyahay.

Tusaalooyin:

(i) U qor logaridam ahaan:

b) $10000 = 10^4$ t) 1000 j) 100 x) $1 = 100$ kh) $10 = 10^1$

b) $10000 = 10^4$ t) 1000 j) 100
 $\text{Log}_{10} 10000 = 4$ $\text{Log}_{10} 1000 = 3$ $\text{Log}_{10} 100 = 2$

x) $1 = 100$ kh) $10 = 10^1$
 $\text{Log}_{10} 1 = 0$ $\text{Log}_{10} 10 = 1$

(ii) U tibaax logaridamyadan jabbaar 10 iyo dhufsanayaal 10:

b) 3 t) 6 j) 5

b) 3 t) 6 j) 5
 $10^3 = 1000$ $10^6 = 1\,000\,000$ $10^5 = 100\,000$

Logaridamyada sida caadiga ah loogu adeegsadaa xisaabinta inta badan waa sal 10. log 100 = 2 waxa loo qaadanayaa micnaheeda $\log_{10} 100 = 2$, loo ma baahna had iyo jeer in la qoro salka . $\text{Log}_{10} = 1$, $\log 10000 = 4$.

Logaridam waxa sal u noqon karaa wax kale oo ka duwan 10 .
 Tusaale ahaan : $8 = 2^3$ kan waxa loo tibaaxi karaa $\log_2 8 = 3$.
 Taas oo ah sal 2 logaridamka 8 waa 3.

(i) U qor kuwan logaridam oo sal la magacaabay ahaan:

b) 81 t) 32 j) 4

b) 81 $81 = 3^4, \log_3 81 = 4$
 t) 32 $32 = 2^5, \log_2 32 = 5$
 j) 4 $4 = 2^2, \log_2 4 = 2$

(ii) U qor logaridamyada tirooyin jibbaaro leh:

b) $\text{Log}_2 16 = 4$ t) $\text{Log}_3 9 = 2$ j) $\text{Log}_5 25 = 2$
 b) $\text{Log}_2 16 = 4$ t) $\text{Log}_3 9 = 2$ j) $\text{Log}_5 25 = 2$
 $16 = 2^4$ $9 = 3^2$ $25 = 5^2$

Layli 4

1. Qiimee logaridamyadan:

b) $\text{Log} 10$ t) $\text{Log}_5 625$ j) $\text{Log} 100\,000$
 x) $\text{Log}_7 49$ kh) $\text{Log} 1\,000\,000$ d) $\text{Log}_{12} 144$
 r) $\text{Log} 1$ s) $\text{Log}_2 64$ sh) $\text{Log}_3 27$

2. U qor logaridam ahaan:

b) $1\,000 = 10^3$ t) $9 = 3^2$ j) $10\,000 = 10^4$
 x) $225 = 15^2$ kh) $1\,000\,000 = 10^6$ d) $16 = 2^4$
 r) $121 = 11^2$ s) $196 = 14^2$ sh) $144 = 11^2$

3. Uqor logaridamyadan jibbaar ahaan .

$$b) \text{Log}15\ 225 = 2$$

$$t) \text{Log} 100\ 000 = 5$$

$$j) \text{Log}3\ 81 = 4$$

$$x) \text{Log}4\ 196 = 2$$

$$kh) \text{Log} 10\ 000 = 4$$

$$d) \text{Log} 1 = 0$$

$$r) \text{Log}_{13}\ 169 = 2$$

$$s) \text{Log}_6\ 36 = 2$$

$$sh) \text{Log}_3\ 729 = 5$$

Logaridamka tirooyinka u dhexeeya 1 iyo 10

Maadaama $\log 1 = 0$ oo $\log 10 = 1$, Logaridamka tirooyinka u dhexeeya 1 iyo 10 waxa ay u dhexeeyaan 0 iyo 1. Logaridamka tirooyinkaas oo kale waxa lagu heli karaa iyada oo la kaalmaysanayo tusayaal logaridam.

Tusaalooyin:

(i) Adeegso tuse logaridam si loo raadiyo logaridamka :

b) 2.6

2.6 waxa ay u dhexaysa 1 iyo 10

$\therefore \log 2.6$ waxa ay u dhexaysa 0 iyo 1.

Tusaha logaridamka 26 ka dib waxa isla markiiba ku arkaysa tirada 4150 .

Haddaba; $\log 2.6 = 0.4150$

t) 26

$$26 = 2.6 \times 10$$

$$= 10^{0.4150} \times 10^1$$

$$= 10^{0.4150} + 1$$

$$= 10^{1.4150}$$

Haddaba; $\log 26 = 1.4150$

j) 2600

$$2600 = 2.6 \times 1000$$

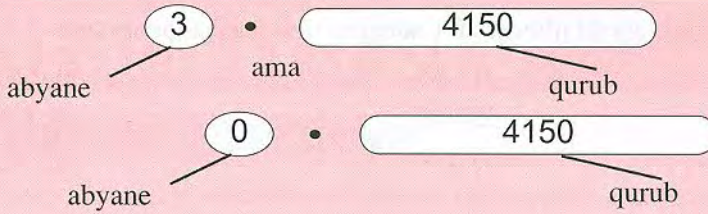
$$= 10^{0.4150} \times 10^3$$

$$= 10^{0.4150} + 3$$

$$= 10^{3.4150}$$

Haddaba, $\log 2600 = 3.4150$

Logaridamka tiro kasta waxa ay leedahay labo qaybood, abyoone iyo tobanle. Qaybta abyoone waxa la yiraahdaa abyane oo qaybta tobanle waxa la yiraahdaa qurub.



Qurub waa tirada laga helo tusayaasha logaridamka .

Abyane waa tirada godadka tirooyinka idil oo hal ka yar yahay.

Tusaalooyin :

Adeegso tusayaal logaridam si aad u raadiso logaridamyada :

b) 37.4

abyanaha log 37.4 waa 1.

Si loo helo qurubka raac jiif u taxa uu ka bilaabanaaya 37 oo ku joogso joog u taxa kor kaga yaal 4. taasi waxa ay ku siinaysaa 5729.

Sida awgeed, $\log 37.4 = 1.5729$

t) 3.746

Si loo helo qurubka, Raadi tirada ku aadan 37 ee hoosta 4 sidii hore oo kale(5729).

Hadda ka raadi tirada joog u taxa 'faraqyada' ee kor kaga yaal 6.

Tiradan waa 7.

7 ugee 5729: $(5729 + 7 = 5736)$

Sida awgeed, $\log 3.746 = 0.5736$

Ogow marka la adeegsanayo tusayaal la hubiyaa tirada laga soo qaadanayo joog u taxa faraaqa in ay ku taallo isla jiif u taxa tirooyinka kale.

Layli 4

1. Adeegso tusayaasha logaridam si aad u hubiso in ay weerahan run ama been mid uun yihiin:

b) $\log 3.3 = 0.5185$

t) $\log 6.5 = 0.8062$

j) $\log 1.3 = 0.1139$

x) $\log 2.1 = 0.3222$

kh) $\log 9 = 0.9542$

d) $\log 2.2 = 0.3424$

r) $\log 50.2 = 1.6992$

2. Qor abyanayaasha tirooyinka soo socda:

b) 350

t) 5.7

j) 2 000 000

x) 473

kh) 49.3

d) 38

r) 8 140 000

s) 100.46

sh) 220 000 000

3. U tibaax waxa soo socda jibbaar 10 (adeegso tusayaasha logaridam:

- | | | |
|---------|---------|----------|
| b) 37 | t) 13.3 | j) 3.8 |
| x) 51.3 | kh) 12 | d) 375 |
| r) 306 | s) 458 | sh) 1.35 |
| dh) 16 | | |

4. Kuwan waa logaridamyada tirooyin. Adeegso tusayaasha si aad u hesho tirada .

- | | | |
|------------|------------|------------|
| b) 0.9590 | t) 0.8573 | j) 0.3979 |
| x) 0.2480 | kh) 0.9009 | d) 0.3010 |
| r) 0.2304 | s) 0.0414 | sh) 0.4471 |
| dh) 0.9912 | | |

5 DHERER IYO BED

Halbeegyada dhererka

Habka cabbiraadaha caalamiga ah ee dhererka waxa uu leeyahay afar halbeeg .

Waxa ay yihiin :

- millimitirka (mm);
- sentimitirka (sm);
- mitirka (m);
- kiilomitirka (km).

Tusahan waxa uu muujinaya xiriirka ka dhexeeya habka caalamiga ah ee halbeegyada dhererka.

	km			mm		sm	mm
10 mm = 1 cm						1	0
100 sm = 1m				1	0	0	
1000 m = 1 km	1	0	0	0			

Desimitir (dm), dekamitir (Dm) iyo hiktomitir (Hm) looma adeegsado habka caalamiga ah. Hase yeeshee rugtii ay ku lahaayeen tusaha waa ay u bannaan tahay.

Halbeegyada mitirka ee dheerarka waxa loo tibaaxi karaa sansaan tobanle. Sida oo kale waxa la isugu geyn karaa, loo kalagoynta karaa, la iskugu dhufan karaa oo la isugu qaybin karaa sansaan tonanle ahaan

Tusaalooyin:

(i) 10 m 927 mm + 1 m 383 mm		m
10 m 927 mm = 10.927 m	1 m 383 mm = 1.383 m	10.927
		+ 1.383
		12.310
(ii) 15 m 27 sm - 8 m 59 sm		m
15 m 27 sm = 15.27 m	8 m 59 mm = 8.59 m	15.27
		- 8.59
		6.68
(iii) 4 km 328 m x 23		km
4 km 328 m = 4.328 km		4.328
		x 23
		12984
		86560
		99.544

Tiri tirada qiime rugeedyada ku dhuftaha iyo lagu dhuftaha
Geli dhibicda tobanlaha taranka adiga oo soo ka tirinaya 3 rug tobanle
Midigta.

$$236 \text{ km } 628 \text{ m} \div 36$$

km

6.573

$$236 \text{ km } 628 \text{ m} = 236.628 \text{ km}$$

$$36 \overline{) 236.628}$$

$$\underline{216} \quad 0$$

$$206 \quad 0$$

$$1 \times 36 = 36$$

$$2 \times 36 = 72$$

$$3 \times 36 = 108$$

$$4 \times 36 = 144$$

$$5 \times 36 = 180$$

$$6 \times 36 = 216$$

$$7 \times 36 = 252$$

$$8 \times 36 = 288$$

Layli 1

- U rog m adiga oo adeegsanaya sansaan tobanle
 - 4 m 96 sm
 - 9 m 439 mm
 - 12 m 37 mm
- U rog km adiga oo adeegsanaya sansaan tobanle :
 - 8 km 594 m
 - 12 m 750 mm
 - 27 km 94 m
- U qor sansaan tobanle ka dibna xisaabi wadarta.
 - 4 m 37 mm + 5 m 485 mm
 - 7 m 86 sm + 8 m 4 cm
 - 9 km 536 m + 4 km 258 m + 3 km 76 m
- U qor sansaan tobanle ka dibna xisaabi faraqa.
 - 28 m 237 mm - 9 m 88 mm
 - 41 m 43 sm - 15 m 65 sm
 - 32 km 130 m - 15 km 285 m
- U qor sansaan tobanle ka dibna xisaabi taranka.
 - 3 km 450 m x 9
 - 15 m 39 cm x 27
 - 8 m 683 mm x 46

6. U qor sansaan tobanle ka dibna xisaabi qaybta
- b) $34 \text{ km } 616 \text{ m} \div 8$
- t) $535 \text{ m } 34 \text{ sm} \div 29$
- j) $514 \text{ m } 577 \text{ mm} \div 53$
7. Gobol loox ah oo cabbirkiisu yahay $9 \text{ m } 60 \text{ sm}$ ayaa loo kala googooyey 15 gobol oo yar yar. Waa maxay dhoreka gobol walba?
8. Immisa geed oo isu kala jira 6 m ayaa lagu beeri kara waddo dhorekeedu yahay 102 m ?
9. Dhinacyada buug ayaa midkiiba yahay 45 sm . Sagaal buug oo sla cabbirkani ah ayaa geli kara khaanadda buugaagta la dhigo. Waa maxay dhoreka khaanadda buugta mitir ahaan?
10. Safiya waxa ay isticmaashay usheeda mitirka oo ah 150 sm si ay u cabbirto dhar ay soo gadatey. Waxa ay usha wax ku cabbirtey 35 jeer. Waa maxay dhererka dharka mitir ahaan?

Meeris

Meeriska goobo waa fogaanta ku wareegsan dibaddeeda .

Waxa loo xisaabi karaa iyada oo la adeegsado jidka :

$$M = \pi dh \text{ iyo } M = 2 \pi g$$

Dh waa dhexroorka goobada oo g-na waa gacanka goobada

$$dh = \frac{m}{\pi} \text{ ama } dh = 2g \qquad g = \frac{dh}{2} \text{ ama } g = \frac{m}{2\pi}$$

$$\pi = 3.14 \text{ ama } \frac{22}{7}$$

Tusaalooyin:

(i) Waa maxay meeriska goobada dhexroorkedu yahay 5 sm ?

(u qaado $\pi = 3.14$)

$$m = \pi \times \text{dhexroor}$$

$$= 3.14 \times 5$$

$$= 15.70 \text{ sm}$$

$$\therefore \text{Meeriska} = 15.7 \text{ sm}$$

(ii) Gacanka shaag waa 35 sm . Xisaabi fogaanta ay soconayso 50 .

(u qaado $\pi = \frac{22}{7}$)

$$\begin{aligned}
 1 \text{ wareeg} &= \text{meeriska shaag} \\
 &= 2 \times \pi \times \text{gacan} \\
 &= 2 \times \frac{22}{7} \times 35 \\
 &= 220 \text{ sm}
 \end{aligned}$$

$$\begin{aligned}
 50 \text{ wareeg} &= 220 \times 50 \\
 &= 11\,000 \text{ sm ama } 110 \text{ m}
 \end{aligned}$$

\therefore Shaagga 110 m ayaa uu soconayaa 50 wareeg

(iii) Xisaabi dhexroorka goobo meeriskeedu yahay 88sm ($\pi = \frac{22}{7}$).

$$m = \pi \text{ dh}$$

$$\text{dh} = m \div \pi$$

$$\begin{aligned}
 \text{dh} &= 88 \div \frac{22}{7} \\
 &= 88 \times \frac{7}{22} \\
 &= 28 \text{ sm}
 \end{aligned}$$

\therefore Dhexroorka goobada waa 28 sm.

(iii) Xarig leh dherer 2640 sm ayaa waxa 20 jeer lagu duubay wareegga durbaan leh qaab goobo. Raadi gacanka durbaanka. (u qaado $\pi = \frac{22}{7}$)

$$1 \text{ duub} = \text{meeriska goobada}$$

$$20 \text{ duub} = 2640 \text{ sm}$$

$$1 \text{ duub} = 2640 \div 20 = 132 \text{ sm}$$

$$1 \text{ duub} = \text{meeriska goobada} = 132 \text{ sm}$$

$$\text{dh} = m \div \pi$$

$$= 132 \div \frac{22}{7}$$

$$= 132 \times \frac{7}{22}$$

$$= 42 \text{ sm}$$

$$g = \text{dh} \div 2$$

$$= 42 \div 2$$

$$= 21 \text{ sm}$$

\therefore Gacanka durbaanka waa 21 sm

Layli 2

(u qaado $\pi = \frac{22}{7}$)

1. Xisaabi gacanka goobooyinka meeriskooda yahay:

- b) 8.8 sm t) 1.32 sm j) 17.6 sm x) 26.4 sm
 kh) 5.28 sm d) 3.14 sm r) 62.8 sm s) 121.56 sm

2. Xisaabi dhexroorka goobooyinka meeriskooda yahay:

- (b) 0.88 m (t) 13.2 m (j) 1.76 m
 (x) 2.64 m (kh) 52.8 m (d) 31.4 m
 (r) 6.28 m (s) 0.1256 m (sh) 314 m
 (dh) 5.024 m (c) 628 m (g) 264 m

3. Meeriska shaag waa 880 sm. Xisaabi dhexroorka .

4. Meeriska goobo waa 17.6 sm. Xisaabi dhexroorka .

5. Shan xarig oo uu midkiiba dhererkiisu yahay 8.8 m ayaa si siman loogu duubay wareeg shan taang oo kala duwan. Raadi gacanka taangi walba haddii tirada duubka uu yahay :

- b) 50 t) 100 j) 200 x) 250 kh) 20

6. Raadi meeriska goobo gcankeedu yahay :

- b) 14 sm t) 2.1 sm j) 0.35 sm x) 0.42 sm

7. Gacanka shaag waa 42 sm. Raadi fogaanta ay soconayso:

- b) 50 wareeg t) 70 wareeg j) 100 wareeg

8. Xisaabi meeriska goobo dhexroorka yahay :

- b) 2.8 sm t) 0.7 sm j) 4.9 sm x) 0.81 sm

9. Xisaabi gacanka shaag ku dhahaaran fogaanta ah 0.88 km :

- b) 200 wareeg t) 220 wareeg j) 440 wareeg

10. Xisaabi dhexroorka shaag ku dahaaran fogaanta ah 440 :

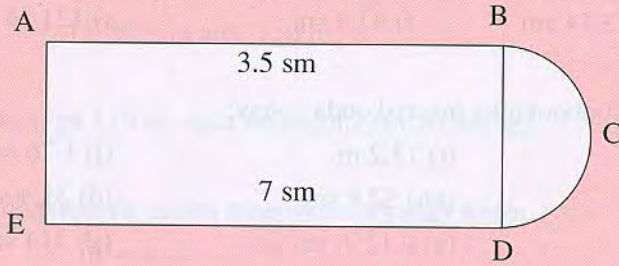
- b) 200 wareeg t) 250 wareeg j) 750 wareeg

Wareeg

Wareegga shaxan waa fogaanta ku xeeran geftamadadeeda dibadda

Tusaalooyin

(i) Xisaabi wareegga shaxanka leh $AE = BD = 3.5$ sm iyo $AB = ED = 7$ sm:



Wareegga = $AB +$ nuska koobada $BCD + DE + EA$

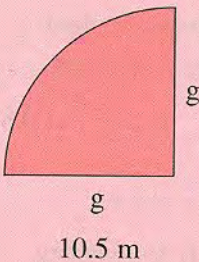
$$\begin{aligned} \text{nuska koobada } BCD &= \frac{1}{2} \pi dh \\ &= \frac{1}{2} \times \frac{22}{7} \times 3.5 \quad (\text{u qaado } \pi = \frac{22}{7}) \\ &= 5.5 \text{ sm} \end{aligned}$$

$$\begin{aligned} \text{Wareegga} &= 7 + 5.5 + 7 + 3.5 \\ &= 23 \text{ sm} \end{aligned}$$

\therefore Wareegga waa 23 sm

(iii) Xisaabi wareegga shaxanka:

Shaxanka waa $\frac{1}{4}$ goobo

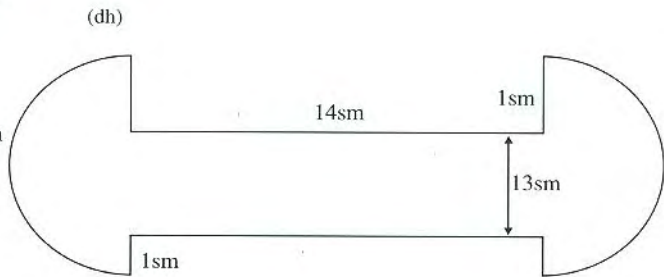
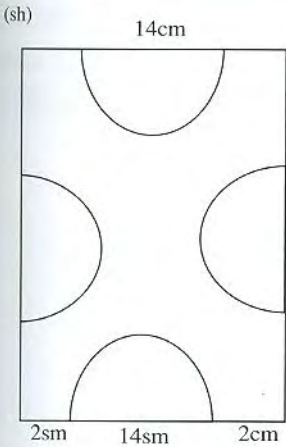
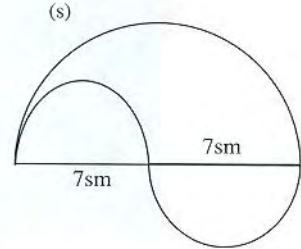
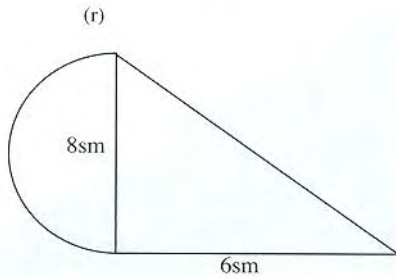
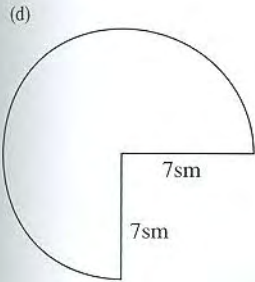
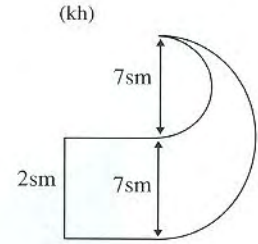
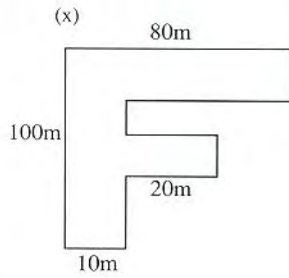
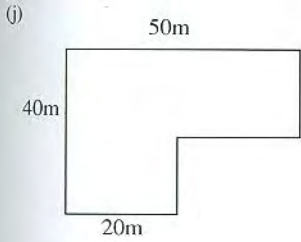
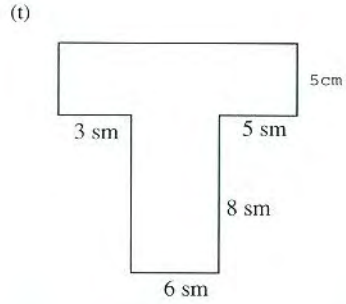
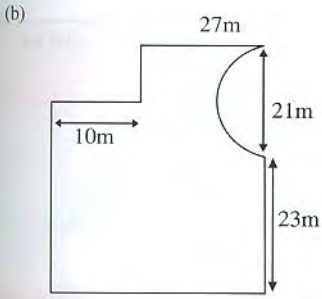


$$\begin{aligned} \text{Wareegga} &= \frac{1}{4} \text{ ka } 2 \pi g + 2g \\ &= \frac{2\pi g}{4} + 2 \times 10.5 \\ &= \frac{2}{4} \times \frac{22}{7} \times 10.5 + 21 \\ &= 16.5 + 21 = 37.5 \text{ m} \end{aligned}$$

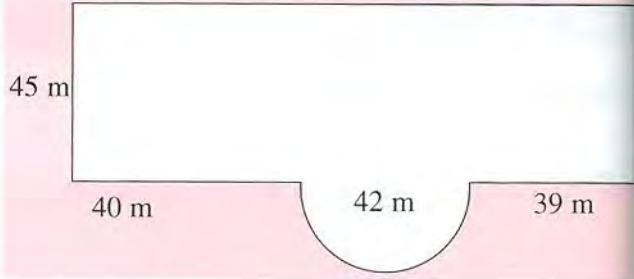
\therefore Wareegga waa 37.5 m

Layli 3

1. Xisaabi wareegga shaxanadan



2. Dhexroorka nus goobo ku taal dhul daaqsin ah waa 42 m. Waa maxay wadarta wareegga dhulka daaqsinka oo dhan mitir ahaan?

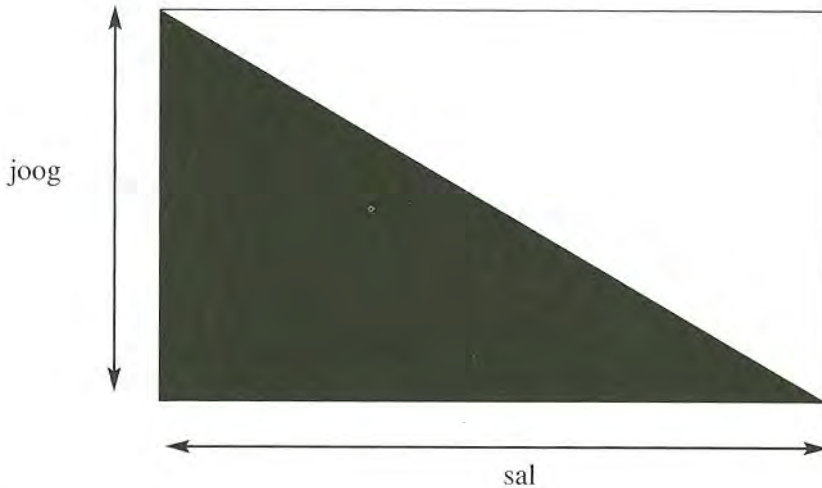


3. Cali waxa uu 11 km ku socday baskiil gacanka shaaggiisu yahay 35 sm.

Immisa wareeg ayaa uu sameeyay shaagga ? (U qaado $\pi = \frac{22}{7}$)

Bedka saddexagal

Bedka saddexagal waa nuska bedka laydi.



Bedka laydi = dheerar x ballac

Haddaba bedka saddexagalkan qumman = $\frac{1}{2}$ dheerar x ballac

Dhererka laydi = salka saddexgalka

Ballaca laydi = $\frac{1}{2}$ joogga saddexagalka

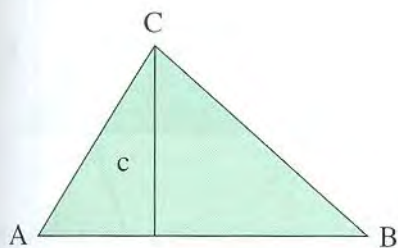
Halkan salka iyo joogga saddexagalka waa ay isku qotomaan

Bedka saddexagal = $\frac{1}{2}$ dherer x Joog

Saddexagallada aan qummanayn waa in loo sawiro joog .

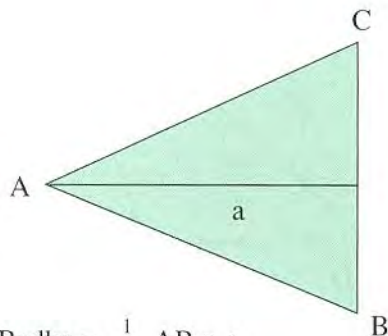
Saddexagallada xaglo fiiqan waxa aad u xulanaysa dhinac kasta sal ahaan .

Ka soo sawir qotome dhinacaas ilaa geeska ka soo horjeeda , waana dhererka joogga.

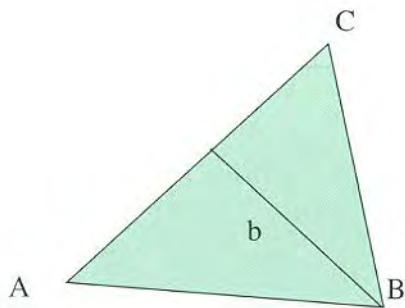


$$\text{Bedka} = \frac{1}{2} \text{ sal x joog}$$

$$A = \frac{1}{2} AB \times c$$



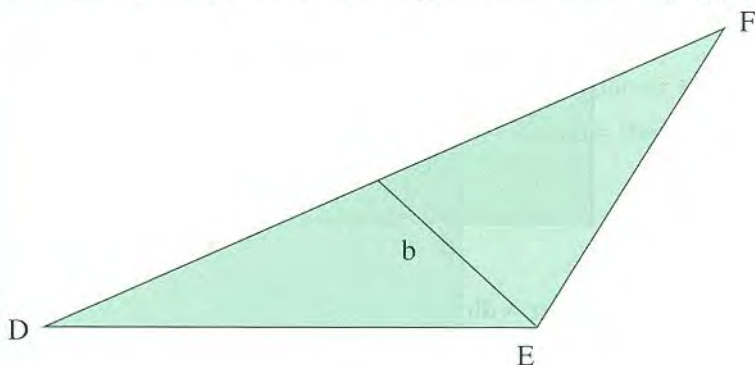
$$\text{Bedka} = \frac{1}{2} AB \times a$$



$$\text{Bedka} = \frac{1}{2} AC \times b$$

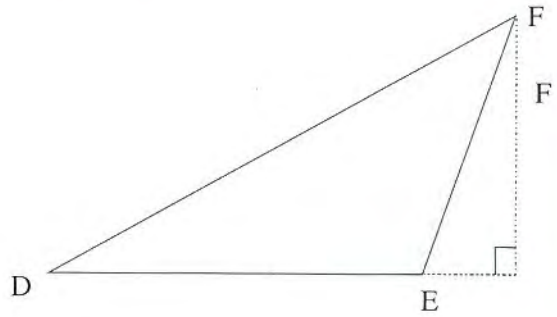
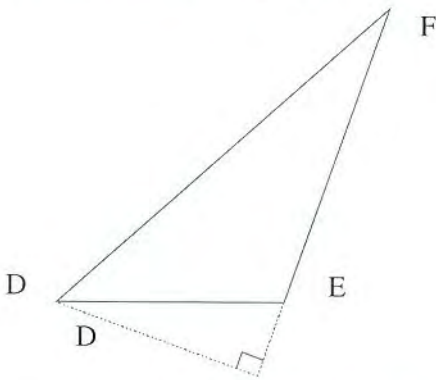
Saddexalka. Furan waxa jira laba hab:

Habka I: u adeegso dhinaca ka soo horjeeda xagasha furan sal ahaan ka dibna ka sawir qotome min dhinacan ilaa geeska ka soo horjeeda, waa dhererka joogga.



$$\text{Bedka saddexagalka DEF} = \frac{1}{2} DF \times e$$

Habka II: Ka sawirrada xarriiq gees oo ku qotonta dhinaca ka soo horjeeda oo la fidiyeyo Dhereka dhinaca waa joogga. Dhinaca saddexagalka waa sal.

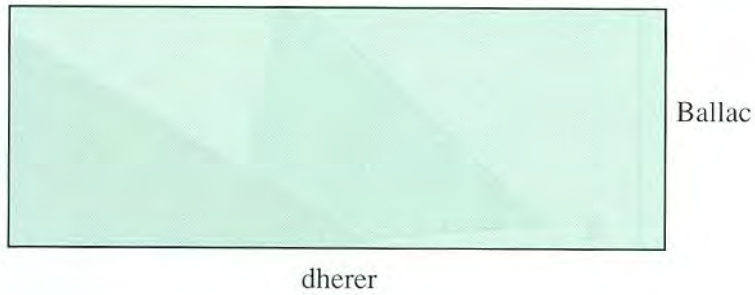


Bedka saddexalka DEF = $\frac{1}{2}$ DF x D

Bedka saddexalka DEF = $\frac{1}{2}$ DF x F

Jidadka Bedka

Bedka laydi



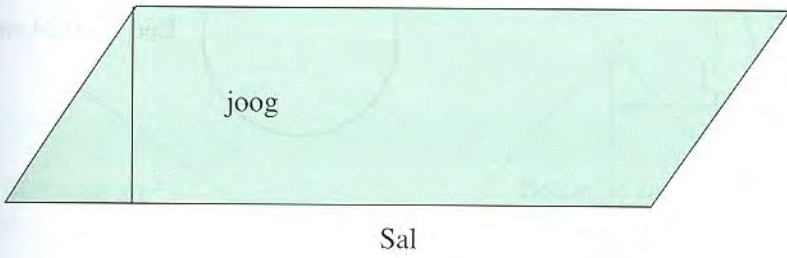
bedk Laydi = dherer x ballac

Bedka labajibbaarane



bedka labajibbaarane = dherer x dherer = dh^2

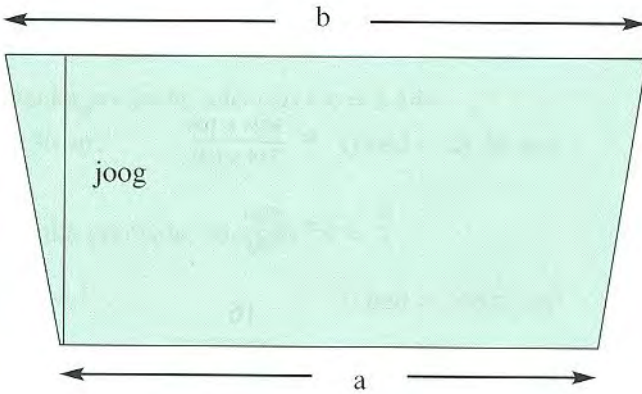
Bedka Barbaroole



Bedka barbaroole = Sal x joog

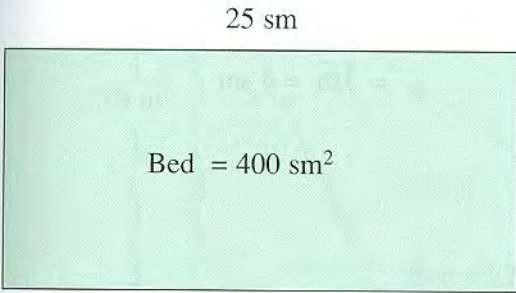
Bedka koor

$\frac{1}{2} \times$ wardata dhinacyada barbarrada ah x joog
 $\frac{1}{2} (a + b) \times j$



Adeegsiga jidadka bedka

b)



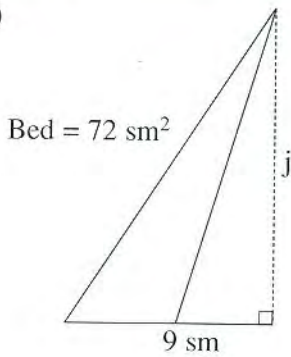
Bed = dherer x ballac
 Ballac = Bed ÷ dherer

$$= \frac{400}{25} = 16$$

= 16 sm

Raadi ballaca laydigan

t)



Raadi joogga saddexagalkan

$$\text{Bed} = \frac{1}{2} \times \text{sal} \times j$$

$$j = \text{bed} \div \frac{1}{2} \times \text{sal}$$

$$= 72 \div \frac{1}{2} \times \text{sal}$$

$$= 72 \div \frac{1}{2} \times 9$$

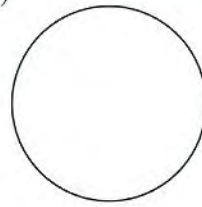
$$= 72 \div \frac{9}{2}$$

$$= \cancel{72}^8 \div \frac{9}{\cancel{2}^1}$$

$$= 8 \times 2$$

$$= 16 \text{ sm}$$

j)



$$\text{Bed} = 50.24 \text{ sm}^2$$

Raadi gacanka goobadan

adeegso $\pi = 3.14$

$$\text{Bed} = x \pi g^2$$

$$g^2 = \text{bed} \div \pi$$

$$= 50.24 \div 3.14$$

$$= \frac{5024 \times 100}{314 \times 100}$$

$$= \frac{5024}{314}$$

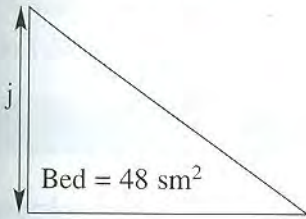
$$\begin{array}{r} 16 \\ 314 \overline{)5024} \\ \underline{314} \\ 1884 \\ \underline{1884} \\ 0 \end{array}$$

$$g^2 = 16$$

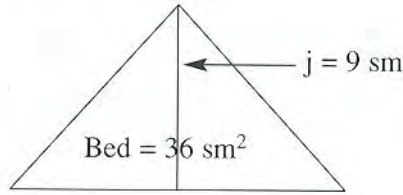
$$g = \sqrt{16} = 4 \text{ sm}$$

Layli 4

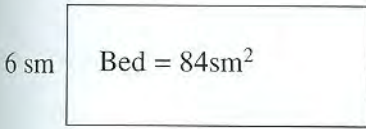
1. b) Xisaabi joogga :



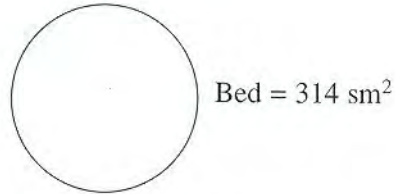
t) Xisaabi dhererka salka :



j) xisaabi dhererka :



d) Xisaaabi gacanka goobadan (u qaado $\pi = 3.14$)



2. Xisaabi joogga saddexagalka leh bed 60 mm^2 iyo sal 15 mm .

3. Xisaabi gacanka goobada, adeegso ($\pi = 3.14$):

b) bed = 12.56 sm^2

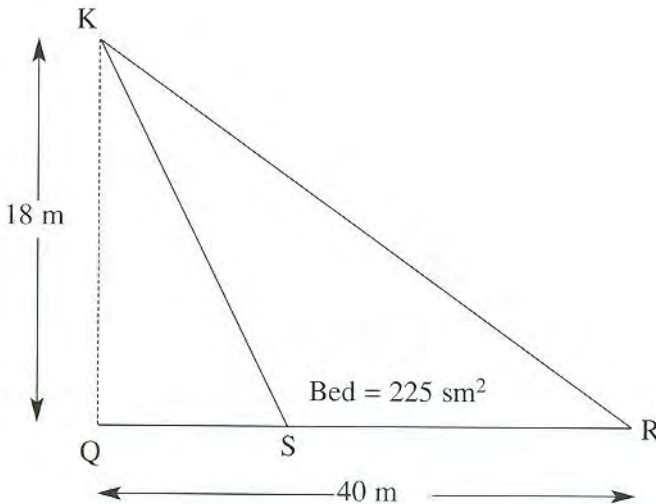
t) bed = 28.26 sm^2

4. Xisaabi gacanka goobada, adeegso. $\pi = \frac{22}{7}$

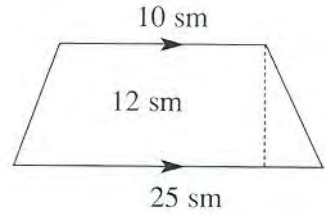
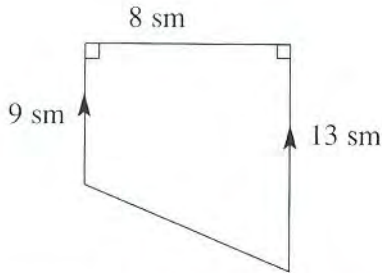
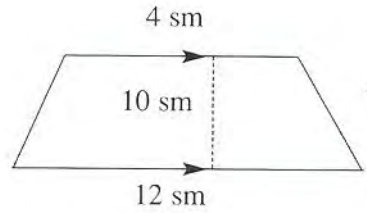
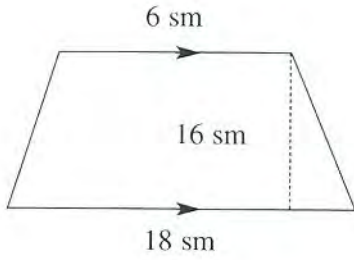
b) bed = 154 sm^2

t) bed = $346 \frac{1}{2} \text{ sm}^2$

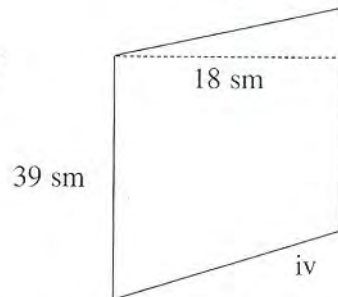
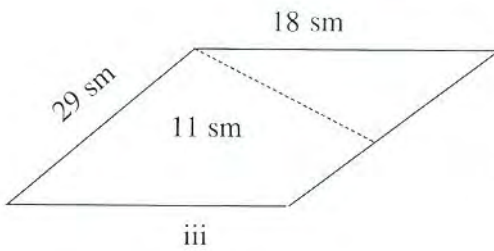
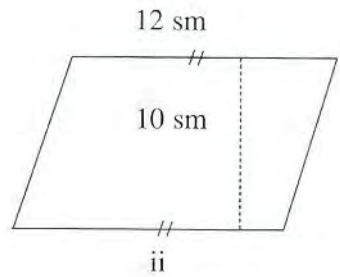
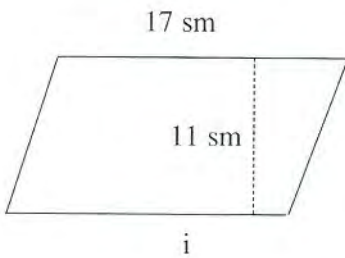
5. Xisaabi dhererka QS.



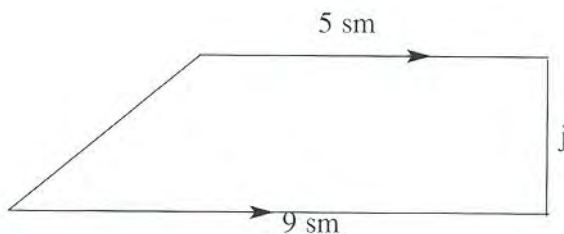
6. Xisaabi bedka koorta:



7. Xisaab bedka barbaroolayaasha:



8. Bedka koor waa 42 sm^2 . Dhinacyada barbarada ahna dhererkoodu waa 9 sm iyo 5 sm. Xisaabi joogga j.

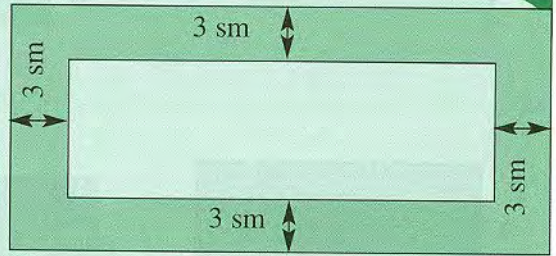


9. Bedka laydi waa 168 sm^2 . Haddii jooggu yahay 7 sm , waa maxay dhererka xagal-gooyaha?
10. Xisaabi gacannada goobooyinka bedkoodu kala yihiin :
- b) 1.54 sm^2 t) 6.16 sm^2 j) 1386 sm^2 x) 2464 sm^2

Bedka xadduudaha iyo qaababka isku jira

Tusaalooyin:

- (i) Sawirka ku dhex jira idaarka waxa looga tegay wareegga xudduud ballaciisu yahay 3 sm . Dhererka idaarka 25 sm iyo ballac 16 sm . Waa maxay bedka xudduudaha?



$$\text{Bedka idaar} = 25 \times 16 \text{ sm}^2 = 400 \text{ sm}^2$$

$$\text{Dhererka sawirka} = 25 - (3 + 3) \text{ sm} = 19 \text{ sm}$$

$$\text{Ballac sawirka} = 16 - (3 + 3) \text{ sm} = 10 \text{ sm}$$

$$\text{Bedka sawirka} = (19 \times 10) \text{ sm}^2 = 190 \text{ sm}^2$$

$$\text{Bedka xudduudka} = 400 \text{ sm}^2 - 190 \text{ sm}^2 = 210 \text{ sm}^2$$

- (iii) Koorta TQRS, TQ waa la barbaro SR, QR waxa uu ku qotoma TQ iyo SR.

TQ = 12 sm iyo QR = 7 sm . Bedka QRS waa 112 sm^2 . Waa maxay dhererka ?

Samee sawir.

$$\text{Bedka koorta TQRS koorta} = \frac{1}{2} \text{TQ} \times \text{QR} + \frac{1}{2} \text{SR} \times \text{QR}$$

$$112 = \frac{1}{2} \times 7 (\text{TQ} + \text{SR})$$

$$112 = \frac{1}{2} \times 7 (12 + \text{SR})$$

$$112 = \frac{7}{2} (12 + \text{SR})$$

$$224 = 84 + 7\text{SR}$$

$$7\text{SR} = 224 - 84$$

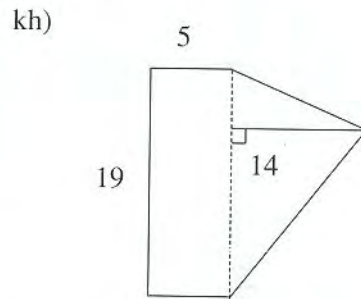
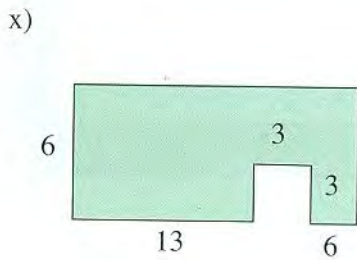
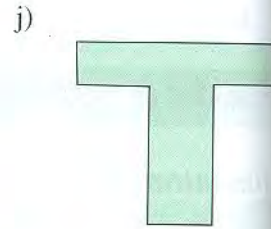
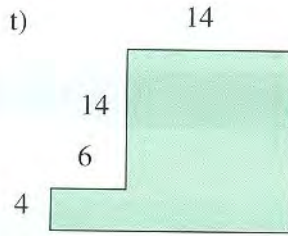
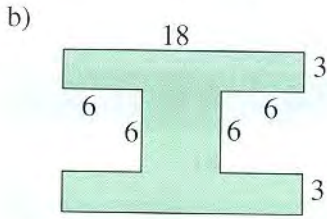
$$7\text{SR} = 140$$

$$\text{SR} = \frac{140}{7}$$

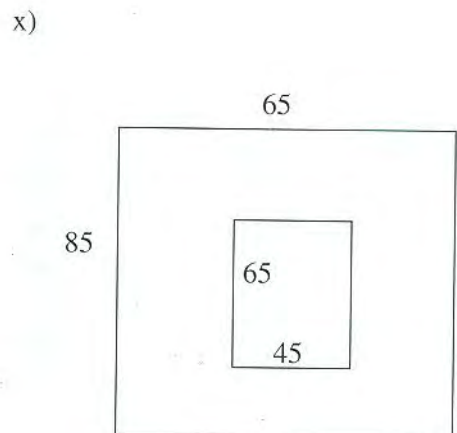
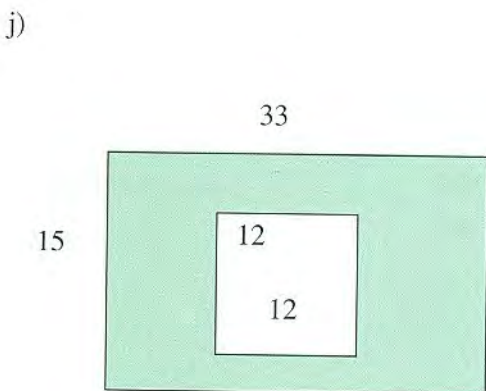
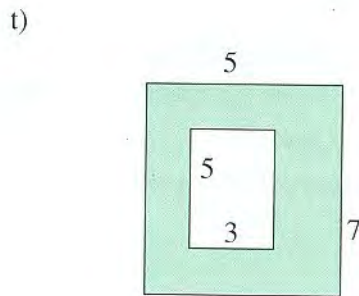
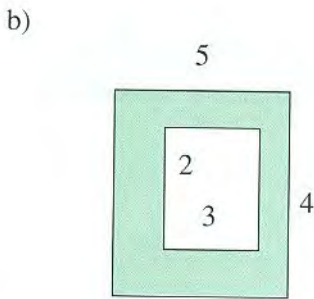
$$= 20 \text{ sm}$$

Layli 5

1. Xisaabi bedka saddexagalladan. Dhammaan cabbiraadaha waa sm.



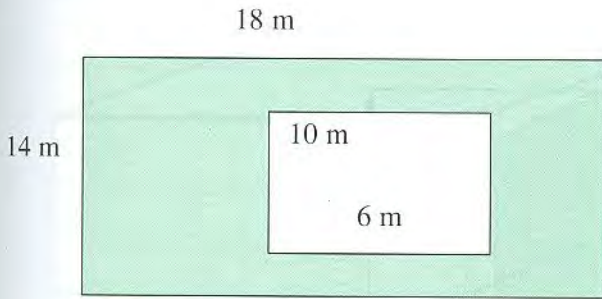
2. Xisaabi bedka xudduudaha shaxannada soo socda . Dhammaan cabbiraadaha waa sm.



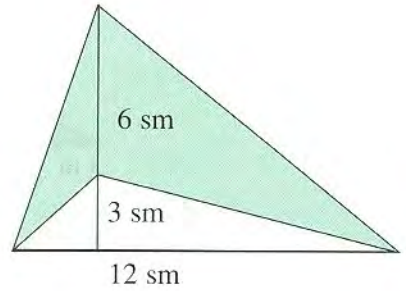
3. Khadiifad cabbirkeedu yahay 4 m iyo $3\frac{1}{2}$ m ayaa la dhigay sagxadda qol cabbirkiisu yahay $4\frac{1}{2}$ m iyo 4 m. Xisaabi bedka sagxadda ee aan gaarin khadiifadda.
4. Garoon cayaareed cabbirkiisu yahay 100 m iyo 90 m ayaa leh tub 2m ballaceedu yahay oo dhinac walba kaga wareegsan.
 - b) Waa maxay bedka garoonka?
 - t) Waa maxay bedka tubta ?

5. Xisaabi bedka gobolka xardhan:

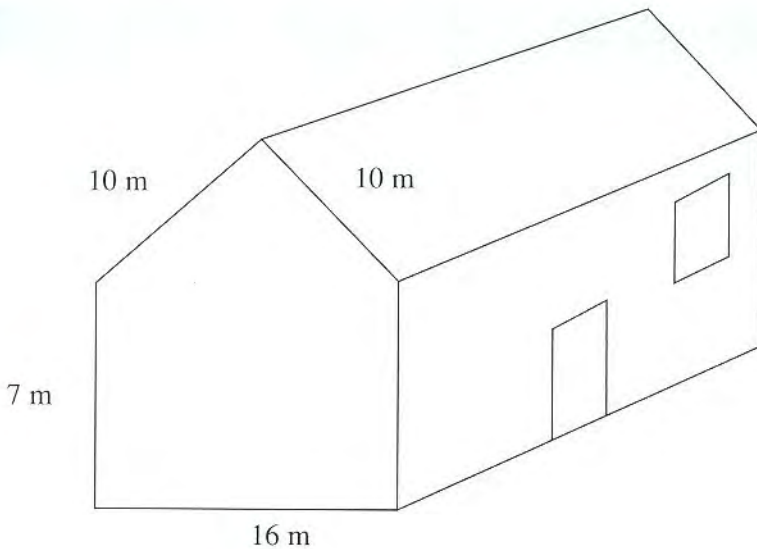
a)



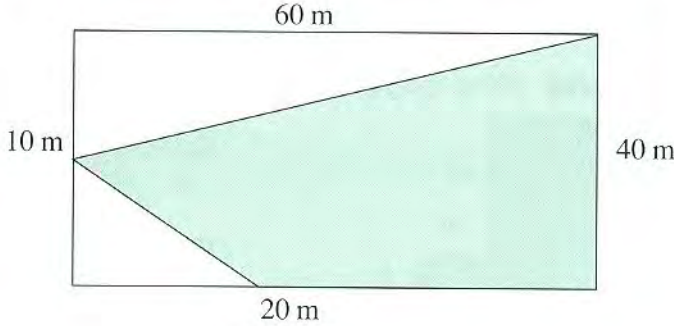
b)



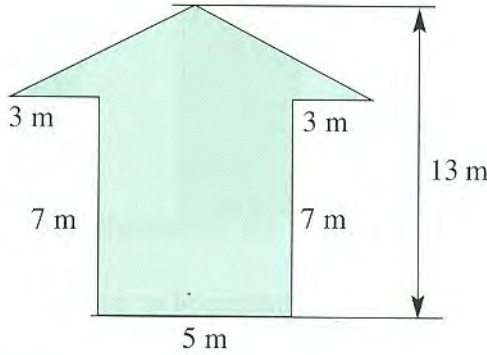
6. Jaantuskan waa guriga xaliima. Labada hareerood ee guriga xaliima ayaa la rabaa in la rinjiyeeyo. Waa maxay bedka ay tahay in la rinjiyeeyo?



7. Waa immisa bedka qaybta xardhan ee shaxankan?

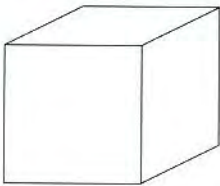


8. Jaantuskan waxa uu muujinayaa qaab laga rinjiyeeyay waddo dusheeda, waa maxay bedkeeda?



Bedka duleedka

Jidad

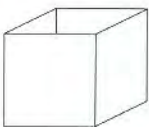


Saddexjibbaarane oodan waxa uu leeyahay 6 weji oo isle'eg

$$\text{Bedka duleed} = 6 \times (\text{dherer})$$

$$= 6dh$$

Saddexjibbaarane oodan:

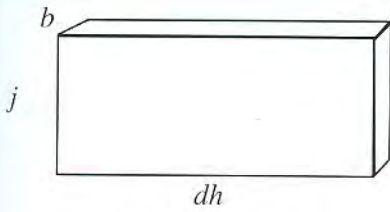


Waxa jira shan weji oo isle'eg

$$\text{Bedka duleed ka} = 5 \times (\text{dherer})$$

$$= 5dh$$

saddexjibbaarane furan:



sadjibeke furan

Sadjibeke oodan waxa uu leeyahay 3 lammaane ee wejiyo oo isle'eg

Lammaanaha 1aad = $2 (dh \times b)$

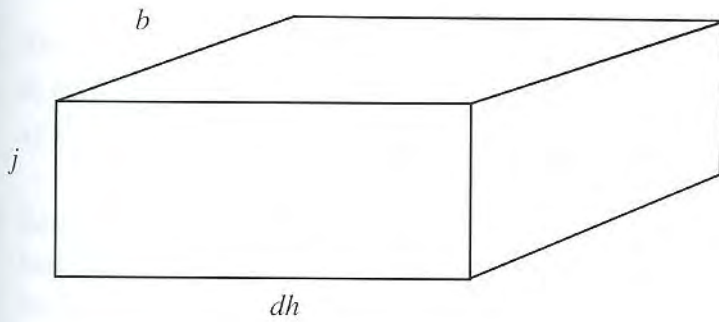
Lammaanaha 2aad = $2 (dh \times j)$

Lammaanaha 3aad = $2 (b \times j)$

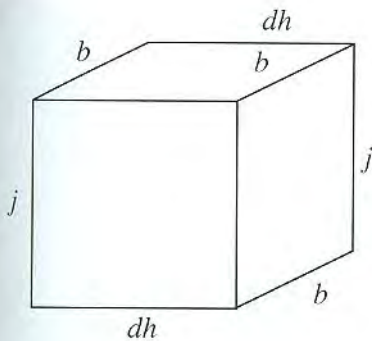
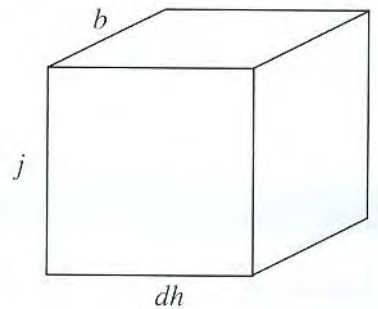
Bedka duleedka = $2 (dh \times b) + 2 (dh \times j) + 2 (b \times j)$
 = $2 (d h b + d h j + b j)$

sadjibeke furan

Bedka duleedka = $(dh \times b) + 2 (dh \times j) + 2 (b \times j)$ haddii dhinac furan uu yahay dhererka

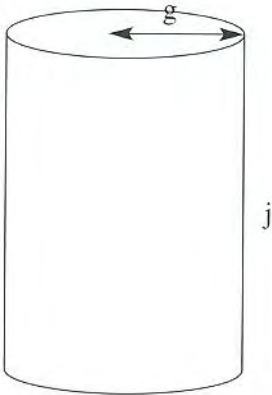


Bedka duleedka = $2 (dh \times b) + (dh \times j) + 2 (b \times j)$ haddii dhinac furan uu yahay joogga.



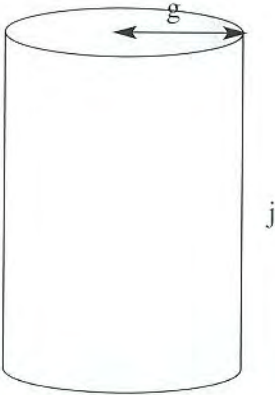
Bedka duleedka = $2 (dh \times b) + 2 (dh \times j) + (b \times j)$ haddii dhinac furan uu yahay ballac.

Dhuluulubo oodan



$$\begin{aligned} \text{Bed duleedka} &= 2 \text{ weji ee cirifyada} + \text{duleedka xoodan} \\ &= 2 \pi g^2 + 2\pi g j \\ &= 2\pi g (g + j) \end{aligned}$$

Dhuluulubo furan

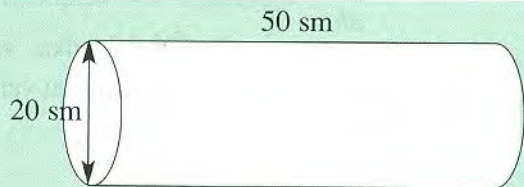


$$\begin{aligned} \text{Bed duleedka} &= \text{hal weji ee cirifka} + \text{duleedka xoodan} \\ &= \pi g^2 + 2 \pi g j \\ &= \pi g (g + 2 j) \end{aligned}$$

Bed duleedka Dhuluulubo oodan

Tusaalooyin:

Xisaabi bed duleedka dhuluulubadan oodan ee dhinaca ku sawiran (u qaado $\pi = 3.14$)



Bedka dusha xoodan = dherer x ballac
 Ballac = joogga dusha xoodan = 50 sm
 Dherer = meeriska dusha xoodan
 $= \pi d$
 $= 3.14 \times 20$
 $= 62.8 \text{ sm}$

$$\begin{aligned} \therefore \text{Bedka dusha xoodan} &= 62.8 \times 50 \\ &= 3140 \text{ sm}^2 \end{aligned}$$

$$\begin{aligned} \text{Bedka salka iyo afka} &= (\pi r^2 \times 2) \\ &= 3.14 \times 10 \times 10 \times 2 \\ &= 628 \text{ sm}^2 \end{aligned}$$

$$\begin{aligned} \text{Wadarta bedka} &= 3140 + 628 \\ &= 3768 \text{ sm}^2 \end{aligned}$$

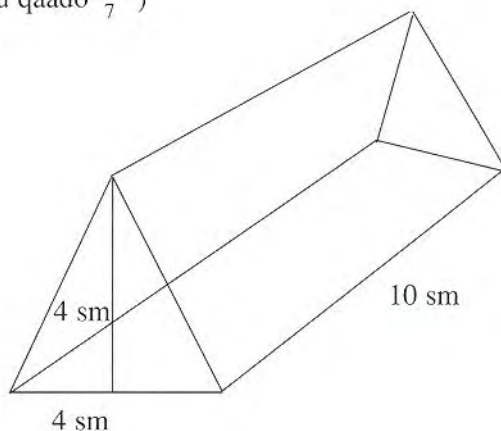
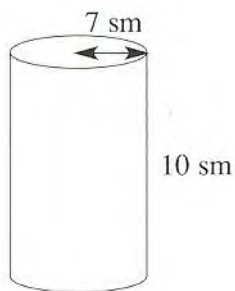
Layli 7

- Xisaabi bed duleedka saddexjibbaarane oodan oo leh dhinacyadan :

b) 3 sm	t) 3.5 sm	j) 4 sm
x) 5 sm	kh) 6.5 sm	d) 6.5 sm
- Xisaabi bed duleedka saddexjibbaarane furan oo leh dhinacyadan:

b) 6 sm	t) 8 sm	j) 10 sm
x) 12 sm	kh) 15 sm	d) 6.5 sm
- Bakhaar ayaa leh dherer 18 m , ballac 12m iyo joog 4 m. Albaabka waxa uu ka furan yahay ballaca dhismaha .

b) Waa maxay bed duleedka sagxadda?
t) Waa maxay bed duleedka derbiga ka soo horjeeda albaabka ?
- Waa mxay bed duleedka qaababkan oodan (u qaado $\frac{22}{7}$)



5. Xisaabi bed duleedka sedjibeke oodan ee leh :
 - b. dherer 45 sm, ballac 38 sm iyo joog 30 sm;
 - t. dherer 17 sm, ballac 11 sm iyo joog 9 sm;.

6. Xisaabi bed duleedka dhuluulubo oodan ee leh:
 - a. Dhexroor 35 sm, Joog 90 sm;
 - b. Dhexroor 112 sm, Joog 85 sm.

- 7). U xisaabi m² ahaan bed duleedka dhuluulubo furan oo leh:
 - c. Dhexroor 560 sm, Joog 350 sm;
 - d. Dhexroor 112 sm, joogh 800 sm.

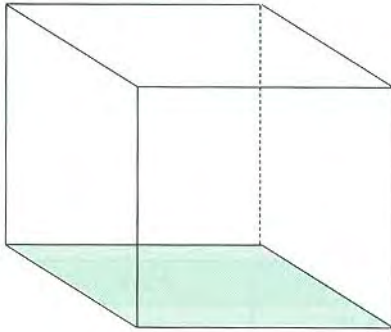
- 8) Aasiya waxa ay koofiyaddeeda goobaysan ka hagaajisay 44 meel oo isu jira 0.5 m . Waa maxay gacanka koofiyadda?

6 MUG IYO QAAD

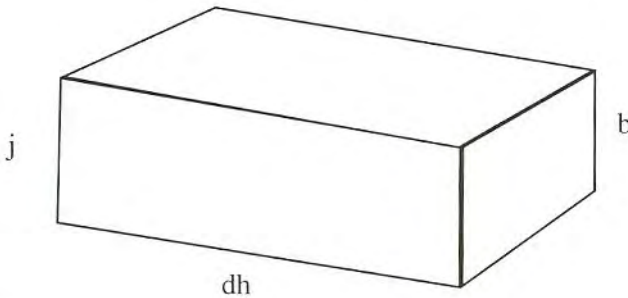
Sadjibekeyaal

Mugga saddexjibbaarane waa inta uu isaga buuxinaya.

$$\begin{aligned} \text{Mugga saddexjibbaaranaha leh dhinac } dh &= dh \times dh \times dh = dh^3 \\ &= dh^2 \times dh \\ &= dh^3 \end{aligned}$$



Sadjibeke leh dherer dh , Ballac b , Joog j :



$$\text{Mug} = dh \times b \times j$$

$$\begin{aligned} \text{Sida oo kale} &= \text{bedka salka} \times \text{joog} \\ &= dh \times b \times j \end{aligned}$$

Tusaalooyin:

- (i) Kartoon ayaa cabbirkiisu yahay dherer 29 sm , ballac 24 sm , joog 16 sm . Raadi mugga kartoonka?

$$\begin{aligned} M &= dh \times b \times j \\ &= 29 \times 24 \times 16 \\ &= 11\,136 \text{ sm}^3 \end{aligned}$$

(ii) Mugga sadjibeke waa 2688 sm^3 oo bedka salkiisuna waa 336 sm^2 xisaabi :

b. Joogga iyo

t. dhererka, haddii ballaciisu yahay 16 sm.

$M = \text{bedka salka} \times \text{Joog}$

$$2688 = 336 \times j$$

$$\frac{2688}{336} = \frac{336 \times j}{336}$$

$$j = 8 \text{ sm}$$

bedka salka = dh x b

$$336 = \text{dh} \times 16$$

$$\frac{336}{16} = \frac{\text{dh} \times 16}{16}$$

$$\text{dh} = 21 \text{ sm}$$

Layli 1

1. Min guuri oo dhammeystir tusaha soo socda:

	Dherer	Ballac	Joog	Mug
b)	8 m	3 m		72 m^3
t)		20 sm	10 m	1000 sm^3
j)	20 sm	8 m		288 sm^3
x)	3 sm	4 m	2 m	
kh)	12.5 sm	8 sm		120 sm^3
d)	5.5 sm		3.8 m	4.18 m^3
r)		5 m	7 m	140 m^3
s)	3.5 m	4.2 m	0.06 m	

- Taangi laydi ah ayaa dhererkiisu yahay 7.6 m, ballaciisuna 6.5 m oo leh joog 5 m. U xisaabi muggiisa m^3 ahaan.
- Mugga sadjibeke waa 245.456 sm^3 oo bedka salkiisa waa 42.32 m^2 . Waa maxay joogga sedjibekaha?
- Mugga sadjibeke waa 10.4 sm^3 . Xisaabi bedka salkiisa haddii uu jooggiisu yahay 1.2sm.
- Dhererka sedjibeke waa 28 sm oo jooggiisuna waa 15 sm. Haddii bedka salkiisu yahay 504 sm^2 , xisaabi,
 - ballaciisa .
 - Muggiisa

6. Sanduuq laydi ah ayaa muggiisu yahay 756 sm^3 . Haddii jooggiisu yahay 6 sm xisaabi bedka salkiisa.
7. Taangi laydi ah ayaa muggiisu yahay 95.472 sm^3 , salkiisuna yahay 36.72 sm^2 . Xisaabi jooggiisa.

Dhuluulubo

Sida saddexjibbaarane iyo sedjibeke, mugga dhuluulubo waxa loo xisaabin karaa iyada oo la iskudhufto bedka salka iyo joogga.

$$\begin{aligned} \text{Mug (M)} &= \text{bedka salka (B) x joog (J)} \\ &= \pi g^2 \times j \\ &= \pi g^2 j \end{aligned}$$

Tusaalooyin:

- (i) Gacanka taangi dhuluulubo ah waa 4 m , oo jooggiisuna waa 7 m , xisaabi muggiisa.

$$\begin{aligned} \text{Mug (M)} &= \text{bedka salka (B) x joog (J)} \\ &= \pi g^2 j \end{aligned}$$

$$(g = 4, j = 7)$$

$$= \frac{22}{7} \times 4 \times 4 \times 7$$

$$= 352 \text{ m}^3$$

- (ii) Mugga dhuluulubo waa 525 sm^3 . Bedka salkeeda waa 75 sm^2 . Xisaabi jooggeeda

$$M = B \times j$$

$$525 = 75 \text{ sm}^2 \times j$$

$$\frac{525 \text{ sm}^3}{75 \text{ sm}^2} = \frac{75 \text{ sm}^2 \times j}{75 \text{ sm}^2}$$

$$j = 7 \text{ sm}$$

- (iii) Mugga dhuluulubo jooggeedu yahay 40 sm waa 3080 sm^3 . Waa maxay gacankeeda?

$$M = \text{bedka salka} \times j$$

$$= \pi g^2 \times j$$

$$3080 \text{ sm}^3 = \frac{22}{7} \times g^2 \times 40$$

$$3080 \text{ sm}^3 = \frac{880}{7} \times g^2$$

Iyada oo laba dhinac lagu kala dhufanaayo rogaalka $\frac{880}{7}$

$$\frac{7}{880} \times 3\,080 = \frac{7}{880} \times \frac{880}{7} g^2$$

$$g^2 = \frac{7}{880} \times 3\,080$$

$$g^2 = 24.5$$

$$g = \sqrt{24.5}$$

$$g = 4.95 \text{ sm}$$

$$\therefore \text{gacan} = 4.95 \text{ sm}$$

(iv) Mugga taangi biyo oo dhuluulubo ah waa $50\,512 \text{ sm}^3$, oo jooggeeduna waa 82 sm.

Xisaabi bedka salka taangiga biyaha .

$$M = B \times j$$

$$B = \frac{M}{j} \qquad (M = 50512 \text{ sm}^3, j = 825 \text{ sm})$$

$$B = \frac{50512 \text{ sm}^3}{88082 \text{ sm}^2}$$

$$= 616 \text{ sm}^2$$

bedka salka taangiga biyaha waa 616 sm^2

Layli 2

1. Min guuri oo dhammeystir tusaha soo socda. Adeegso $\pi = \frac{22}{7}$ ama 3.14.

	Gacan	Dhexroor	Joog	Mug
b)			10 sm	30 sm^3
t)		20 sm	4.2 sm	
j)		2.8 sm	3.5 sm	
x)	21 sm		$12 \frac{1}{4} \text{ sm}$	
kh)		6.3 sm	$25 \frac{1}{4} \text{ sm}$	
d)	$12 \frac{3}{4} \text{ sm}$		10 sm	
r)		14 sm	15 sm	
s)	8 sm		20 sm	
sh)	10 sm		25 sm	
dh)	16 sm		25 sm	

2. Xisaabi mugga dhuluulubo gacankeedu yahay 0.77 sm, oo joogeeduna yahay 15 sm.
3. Dhexroorka dhuluulubo waa 12.5 sm. Haddii jooggu yahay 18 sm, xisaabi mugga .
4. Taangi biyo oo dhuluulubo ah ayaa leh dhexroor 12.5 m iyo joog 2.3 m. Xisaabi mugeeda .
5. Weel biyo oo dhuluulubo ah ayaa leh gacan 4 m iyo joog 12 m. Waa maxay mugga weelka m² ahaan?
6. Min guuri oo dhammeystir tusahan. U qaado $\pi = 3.14$

	Gacan	Dhexroor	Joog	Mug
a)			10 sm	18 634 sm ³
b)			18 sm	6 237 sm ³
c)		10 sm		3 850 sm ³

7. Mugga dhuluulubo waa 450 sm³, joogeeduna 25 sm, Raadi bedka salkeeda.
8. Mugga dhuluulubo waa 960 sm³. Bedka salkeeda waa 48 sm². Raadi joogeeda

Mugga adkeyaasha daloola

Tusaalooyin:

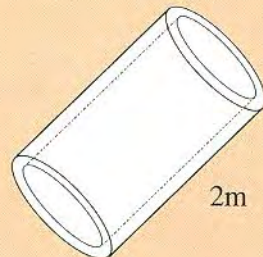
(i) Jaantuska waxa uu muujinayaa dhuun biyood bir ah oo 2m ah. Gacanka goobo gudeedka waa 1.4 sm. Goobo dibadeedka waxa ay leedahay gacan 2.8sm ah. Xisaabi mugga birta.

(U qaado $\pi = \frac{22}{7}$).

Habka 1

Marka hore xisaabi mugga dhuluulubada leh gacan dibadeedka 28 sm.

$$\begin{aligned} \text{Mugga dhuluulubo} &= \pi g^2 \times j \\ &= \frac{22}{7} \times 2.8 \times 2.8 \times 200 \text{ sm} = 4928 \text{ sm}^3 \end{aligned}$$



Marka xiga xisaabi mugga meesha ay biyuhu maraan.

$$\text{Mugga gudaha} = \pi g^2 \times j = \pi \times 1.4 \times 1.4 \times 200 = 1232 \text{ sm}^3$$

$$\text{Sidaa awgeed mugga birta} = 4928 - 1232$$

$$= 3696 \text{ m}^3$$

Habka 2

Mugga = bedka jeebis gudubka x dhererka gudubka

Jeebis gudubka waa gobolka xardhan

$$\text{Bedka jeebis gudubka} = \pi g_1^2 - \pi g_2^2$$

$$= \pi (g_1^2 - g_2^2)$$

$$= \pi (2.8^2 - 1.4^2)$$

$$= \frac{22}{7} (7.84 - 1.96)$$

$$= 18.48 \text{ sm}^2$$

(ii) Dalool dhuluulubo ah oo gacankiisu yahay 3.5 sm ayaa laga dhex dalooliyey bir dhuluulubo ah oo gacankeedu yahay 4.2 sm. Joogga birtu waa 20 sm. Xisaabi mugga qaybta birta ee hartay.

$$\text{Mugga birta} = \pi g^2 j$$

$$= \frac{22}{7} \times 4.2 \times 4.2 \times 20$$

$$= 1108.8 \text{ sm}^3$$

$$\text{Mugga birta laga saaray} = \pi g^2 j$$

$$= \frac{22}{7} \times 3.5 \times 3.5 \times 20$$

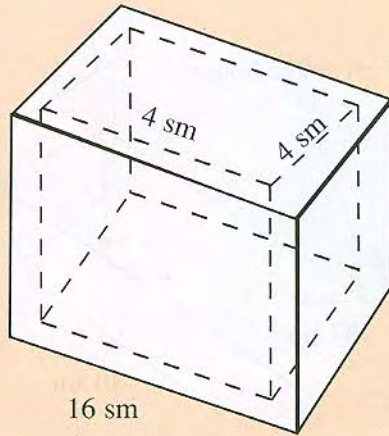
$$= 770 \text{ sm}^3$$

mugga qaybta birta ee hartay = Mugga birta oo idil - Mugga birta gudaha laga saaray

$$= 1108.8 - 770 = 338.8 \text{ sm}^3$$



(iii) Qayb labajibbaarane cabbirkeedu yahay 4 sm iyo 4 sm ayaa laga saaray waslad alwaax oo jooggiisu yahay 9 sm. Wasladda alwaaxa waa 12 sm oo dherer ah, 10sm oo ballac ah iyo 9 sm oo joog ah. Waa maxay mugga alwaaxa haray.



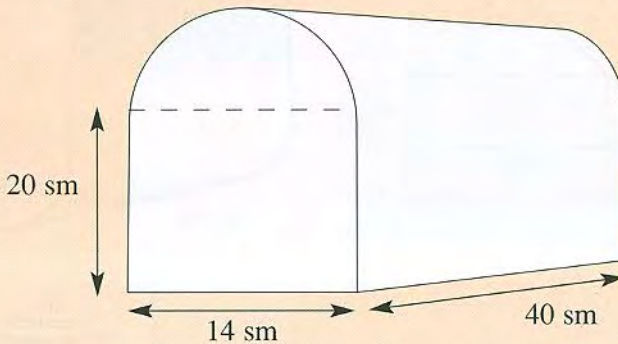
$$\begin{aligned} \text{Muugga wasladda oo idil} &= dh \times b \times j \\ &= 16 \times 12 \times 9 \text{ sm}^3 \\ &= 1728 \text{ sm}^3 \end{aligned}$$

$$\begin{aligned} \text{Muugga wasladda laga saaray} &= dh \times b \times j \\ &= 4 \times 4 \times 9 \text{ sm}^3 = 144 \text{ sm}^3 \end{aligned}$$

Mugga alwaaxa haray waa faraaqa labada mug.

$$= 1728 \text{ sm}^3 - 144 \text{ sm}^3 = 1584 \text{ sm}^3$$

(iv) Xisaabi mugga shaxanka hoose:



M = bedka jeebis gudubka x dherer bedka jeebis gudubka

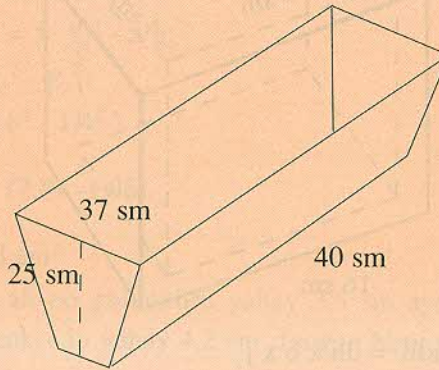
= Bedka nuska goobo+ bedka laydiga

M = bedka jeebis gudubka x joogga (ama dhererka)

$$= [(\frac{1}{2} \pi r^2) + (24 \times 14)]$$

$$\begin{aligned}
 &= \left[\frac{1}{2} \times \frac{22}{7} \times 7 \times 7 \right] + (24 \times 14) \times 40 \\
 &= (77 + 336) \times 40 \\
 &= 413 \times 40 \\
 &= 16\,520 \text{ sm}^3
 \end{aligned}$$

(v) Xisaabi mugga koorta prisim ee hoose:



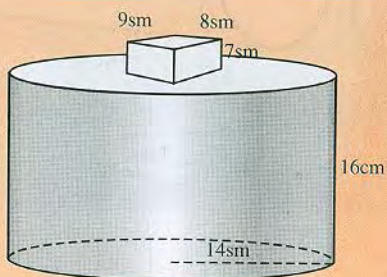
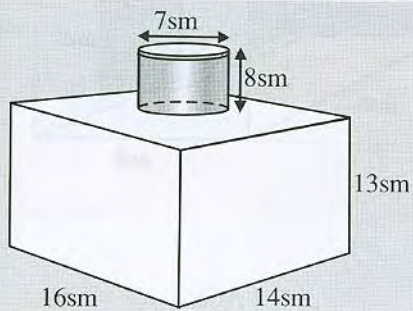
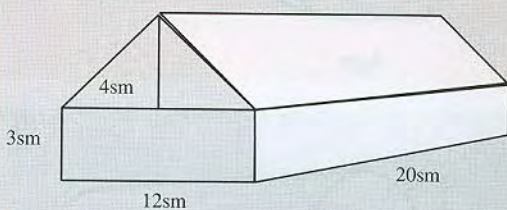
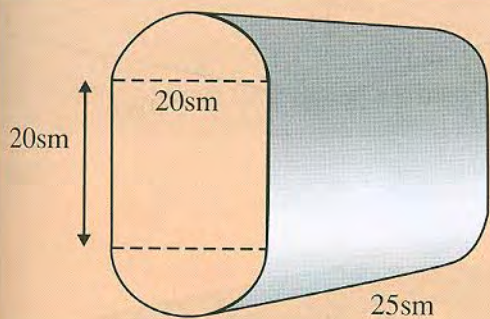
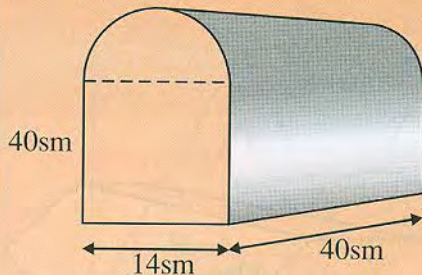
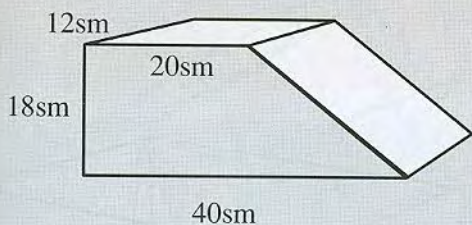
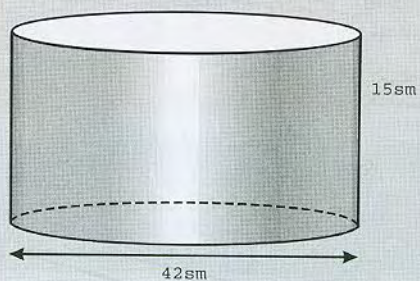
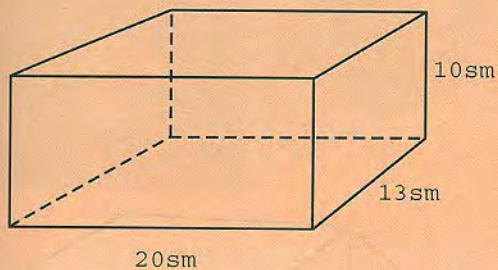
M = bedka jeebis gudubka x dherer
jeebis gudubka waa koor

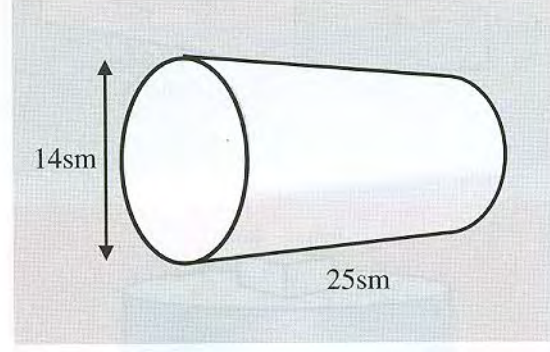
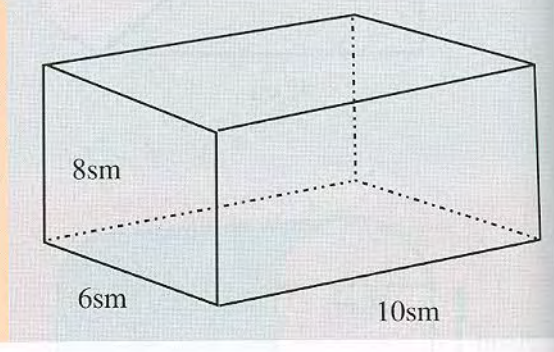
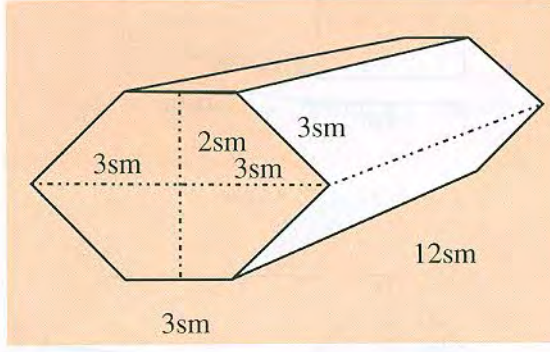
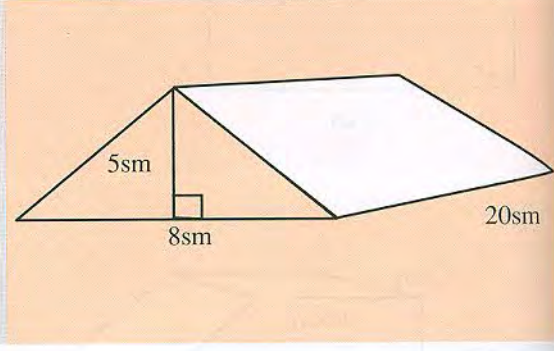
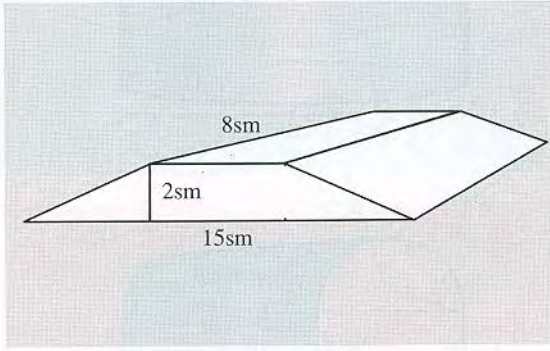
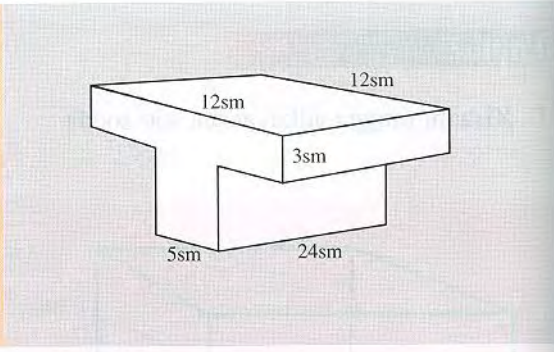
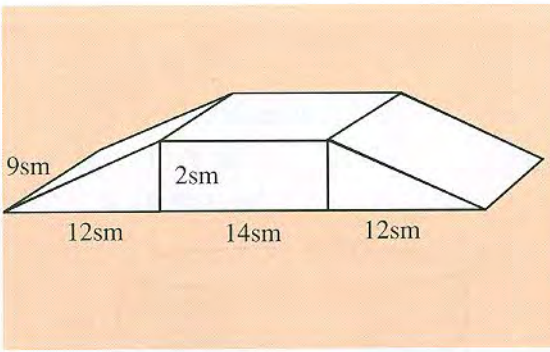
M = bedka jeebis gudubka x dherer

$$\begin{aligned}
 &= \left[\frac{1}{2} (6 + 4) \times 5 \right] \times 40 \\
 &= \left[\frac{1}{2} (10) \times 5 \right] \times 40 \\
 &= 25 \times 40 \\
 &= 1000 \text{ sm}^3
 \end{aligned}$$

Layli 7

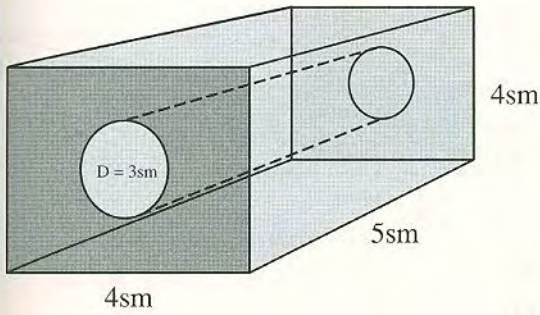
1. Xisaabi mugga adkayaasha soo socda :



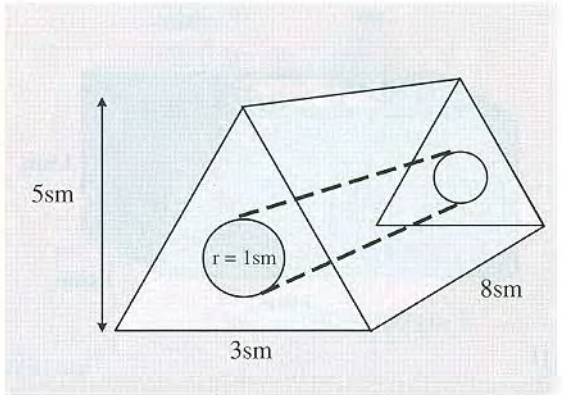


2. Xisaabi mugga walxaha ka haraya daloolada adkayaashan soo socda:

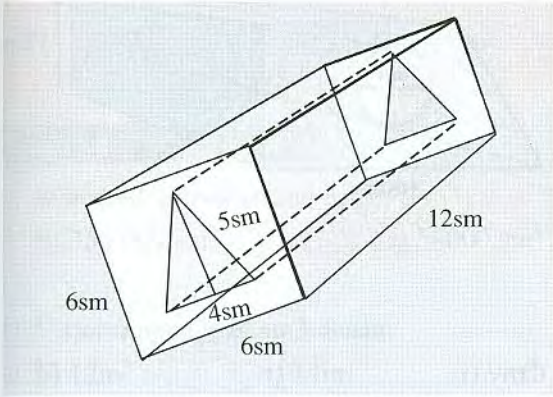
b)



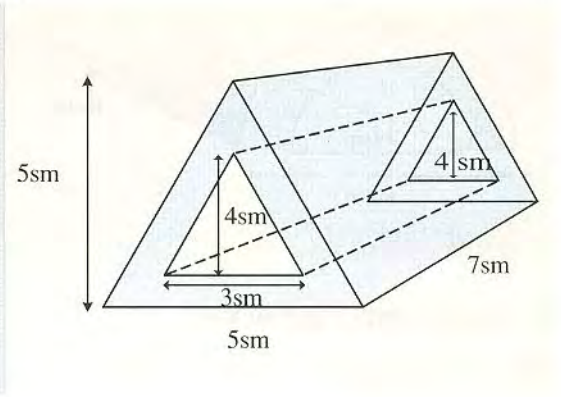
t)



j)

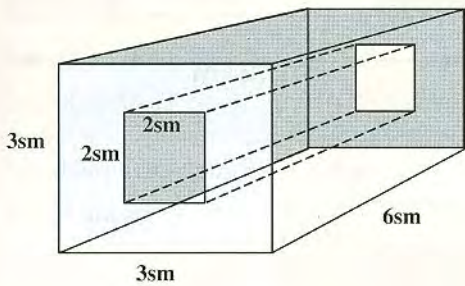


x)

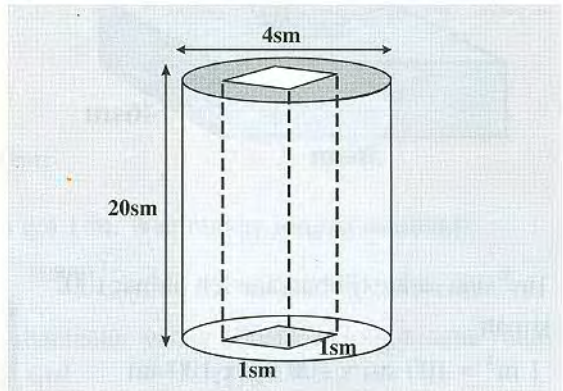


3. Xisaabi mugga qaababkan:

kh)

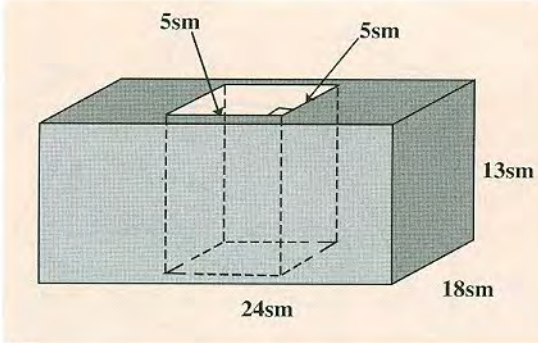


d)

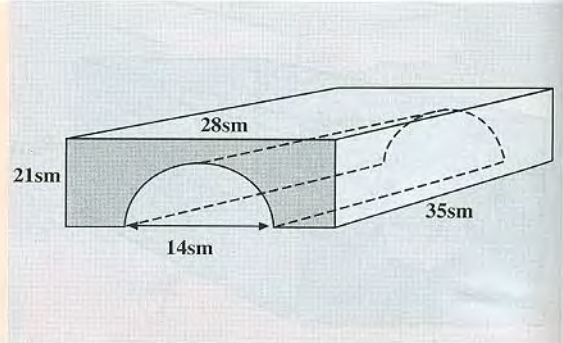


4. Xisaabi mugga qaababkan:

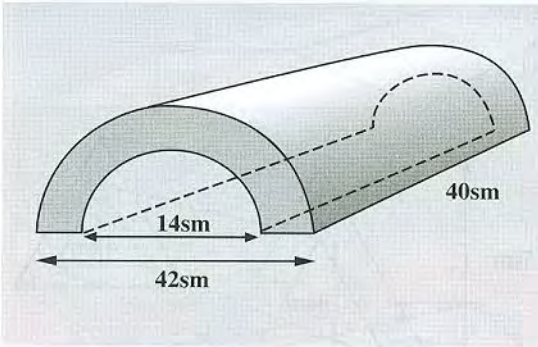
b)



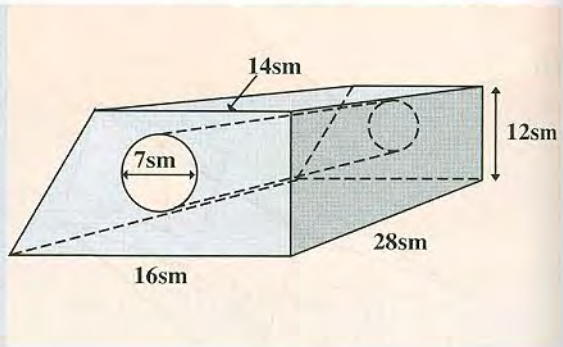
t)



j)

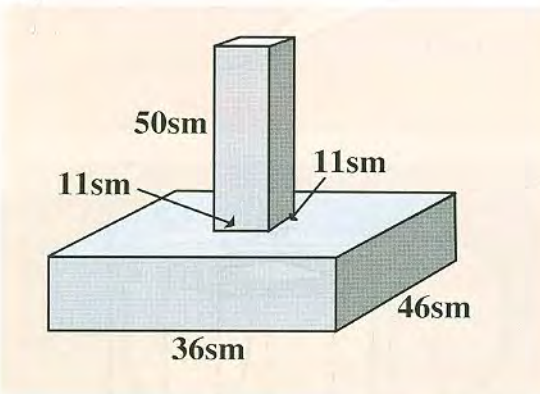


x)

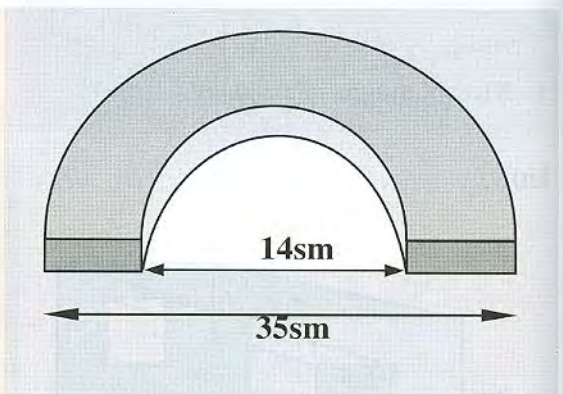


5. Xisaabi mugga qaababkan:

kh)

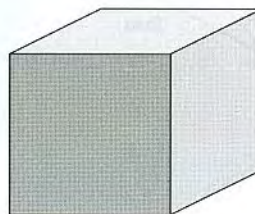


d)



1m³ sida saddexjibbaarane leh dhinac 100 sm ah.

$$1 \text{ m}^3 = 100 \text{ sm} \times 100 \text{ sm} \times 100 \text{ sm} \\ = 1\,000\,000 \text{ sm}^3$$



Tusaalooyin:

(i) U xisaabi qiimayaashan m^3 ahaan:

b) $8\,500\,000\,sm^3$

$$1\,m^3 = 1\,000\,000\,sm^3$$

$$8\,500\,000\,sm^3 = \frac{8\,500\,000}{1\,000\,000}$$

$$= 8.5\,m^3$$

t) $6850\,sm^3$

$$6850\,sm^3 = \frac{6850}{1\,000\,000}$$

$$= 0.00685\,m^3$$

(ii) U beddel qiimayaashan sm^3

b) $4.5\,m^3$

$$4.5\,m^3 = 4.5 \times 1\,000\,000\,sm^3 = 4\,500\,000\,sm^3$$

$$1\,m^3 = 1\,000\,000\,sm^3$$

t) $0.006\,m^3$

$$0.006\,m^3 = 0.006 \times 1\,000\,000\,sm^3 = 6\,000\,sm^3$$

Layli 4

1. U beddel qiimayaashan m^3

b) $350\,000\,sm^3$

t) $58\,000\,sm^3$

j) $2\,000\,500\,sm^3$

2. U qor muggaggaan sm^3 ahaan.

b) $12\,m^3$

t) $14\,m^3$

j) $9\,m^3$

x) $5\,m^3$

kh) $20\,m^3$

3. Taangi laydi ah ee jooggiisu yahay $2.5\,m$ ayaa leh sal labajibbaarane ah oo dhinaciisu yahay $2.5\,m$. taangiga waxa ka buuxa biyo.

b) Immisa litir oo biyo ayaa uu qaadaya taangiga?

t) hal maalin ka dib heerka biyaha waxa uu hoos ugu dhacay $80\,cm$. Immisa litir ayaa la isticmaalay?

4. U beddel m^3

b) $500\,000\,sm^3$

t) $24\,340\,000\,sm^3$

5. Sanduuq ayaa cabirkiisu yahay $1\,m$ iyo $1\,m$ iyo $1\,m$. Waa maxay mugga sanduuqa :

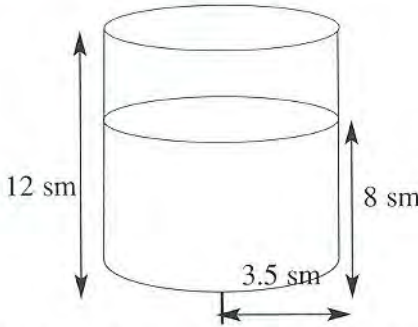
b) m^3 ahaan

t) sm^3 ahaan?

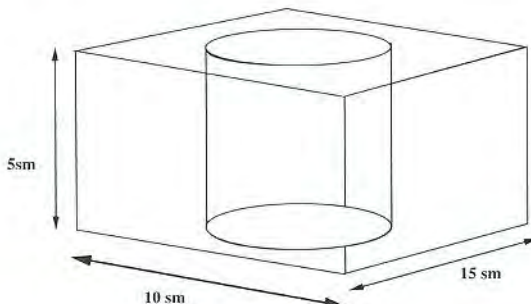
6. Sedjibeke ayaa dhererkiisu yahay $400\,cm$, ballaciisuna yahay $180\,cm$ oo jooggiisuna yahay $150\,cm$. U xisaabi mugga sedjibekeaha. b) m^3 t) m^3

7. Xisaabi mugga sanduuq leh cabbir $2.5\,m$ iyo $80\,cm$ iyo $60\,cm$. U qor mugga m^3 ahaan.

8. Qaadka weel laydi ah waa 150 litir. Raadi jooggiisa m ahaan , haddii cabbirrada salkiisu yihiin 0.5 m iyo 0.9 m.
9. Jaantuskan waxa uu muujinaya teneg, kaas oo ku jira biyo ay jooggoodu yihiin 8 sm. Immisa mililitir ayaa loo baahan yahay si loo buuxiyo?



10. Labo weel oo leh qaab laydi ah oo isu eg oo leh dherer 3.2m, joog 5.1m iyo ballac 2.6m ayaa ka buuxa daawooyin . waxa lagu baneeyay weel weyn oo laydi ah oo leh dherer16m, ballac1m iyo joog 7m. Immisa hoor dheeraad ah ayaa loo baahan yahay si uu u buuxsamo ?
11. Taangi laydi ah oo cabbirkiisu yahay 3m iyo 2.1m iyo 1.4m ayaa biyo ka buuxa. Ka dibna biyaha waxa lagu gediya taangi dhuluulubo ah ee leh dhexroor 1.05m , joog 5m. Immisa biyo ayaa ku haraya taangigii hore ?
12. Weel laydi ah ayaa qaada 10 litir oo biyo ah marka uu buuxo. Jooggiisu waa 70 sm. Waa maxay bedka salkiisa?
13. Weel ayaa qaada 400 litir oo biyo ah marka uu buuxo rubaciisa . Xisaabi joogga weelka haddii bedka salkiisu yahay 4m².
14. Maxamed waxa uu ka sameeyay dalool wasladda alwaaxa hoos ku muujisan. Cabbirka wasladdu waa15 sm iyo 10 sm iyo 5 sm. Dhexroorka daloolka dhuluulubada ah waa 7sm. Waa maxay mugga qaabka soo baxay ? (u qaado = $\frac{22}{7}$)



7 CULAYS

Halbeegyada culayska

1000 garaam (g) = 1 kilogaraam (kg)

1000 kg = 1 tan (t)

Tusaalooyin:

Gaari bik-ab culayskiisu yahay 1.4 t ayaa lagu raray 40 kiish oo shamiinto ah oo uu midkiiba culayskiisu yahay 50 kg . Waa maxay wadarta culayska gaariga bik-abka iyo rarka saaran?

$$\begin{aligned} \text{Culayska shamiintada} &= 40 \times 50 \\ &= 2000 \text{ kg} \\ &= 2 \text{ t} \quad (1 \text{ t} = 1000 \text{ kg}) \end{aligned}$$

$$\begin{aligned} \text{wadarta culayska} &= \text{shamiintada} + \text{bik-abka} \\ &= 2 + 1.4 \\ &= 3.4 \text{ t} \end{aligned}$$

Layli 1

1. Min guuri oo dhammeystir tusahan:

g	kg	t
200		
		5
	2100	
		6.25
	1068.5	
8650.00		

2. U beddel kg:

- | | | |
|-------------|----------------|------------------|
| b) 15.5 t | t) 7.53 t | j) 42.51 t |
| x) 1 550 t | kh) 26 000 g | d) 422 100 g |
| r) 63 217 g | s) 5 874 500 g | sh) 53 905 356 g |

3. U beddel t:

- | | | |
|----------------|----------------|----------------|
| b) 8 000 000 g | t) 2 800 000 g | j) 5 600 000 g |
| x) 980 000 g | kh) 4 600 kg | d) 614 000 kg |
| r) 1 950 kg | s) 95 kg | sh) 673 190 kg |

4. U beddel g:
- | | | |
|------------|-------------|---------------|
| b) 2.5 t b | t) 4.75 t | j) 25 t |
| x) 2.95 t | kh) 7.5 kg | d) 0.25 kg |
| r) 7.75 kg | s) 15.25 kg | sh) 324.75 kg |
5. Lixdan kun kiiloogaraam oo caleen shaah ah ayaa lagu kala shubay baakado 500g iyo 250g. Haddii ay jiraan 4000 baako oo min 500g ah. Immisa baakado ayaa guud ahaan ay isku noqdeen?
6. Sanduuq ay ku jiraan 40 buug oo isku mid ah ayaa culaykiisu yahay 9.6 kg. Sanduuqa culayskiisu waa 1.5 kg marka uu maran yahay. Waa maxay culayska buug kasta garaam ahaan.?
7. Baabuur ayaa lagu raray 800 kartoon oo midkiiba ay ku jiraan 25 gasac oo saliid ah. Kartoon kasta oo maran culayskiisu waa 500 g, qasacad walba oo saliid ahna culayskeedu waa 2kg . Waa maxay wadarta culayska rarka gaariga tan ahaan ?
8. Nuur ayaa waxa uu baakado $\frac{1}{2}$ kg iyo $\frac{1}{4}$ kg ah oo isku tiro ah ku kala shubay Bur. Haddii uu haystay 120 kg oo bur ah , immisa $\frac{1}{2}$ kg iyo $\frac{1}{4}$ baakado ah ayaa uu sameeyay?
9. Kiishka shamiintada culayskiisu waa 50 kg . Baabuur waday 5 t ayaa jabay. Ka dibna waxa shamiintada lagu raray bik-up qaadaya markiiba 10 kiish. Immisa jeer ayaa ay bik-abku qaadaya?
10. Culayska Diiriye waa 53.6 kg. Waxa uu xirnaa kabo 450 garaam ah , waxa uu sitay boorso culayskeedu yahay 4.5 kg. Haddii uu fuulo miisaan asiga oo gashan kabahiisa oo xambaarsan boorsadiisa, waa immisa culayska in la diiwaan geliyo ay tahay?
11. Maryan waxa ay soo goosatay 22.69 t oo bariis ah. Waxa ay ku iibisay jawaano 100 kg qaad ah . Immisa jawaan oo buuxa ayaa ay iibisay ?
12. Lix boqol kiilogaraam oo caleen shaah ah ayaa waxa lagu kala shubay baakado 500 g qaad ah. Immisa bakado ayaa loo baahan yahay?

8 XAWAARE IYO WAQTI

Xawaare

Xusuusin:

$$\text{Xawaare} = \frac{\text{Fogaanta la socday}}{\text{Waqtiga uu qaatay}}$$

Halbeeyada xawaaraha waa km / sac ama m / ilb

$$\text{waqtiga uu qaadatay} = \frac{\text{Fogaanta la socday}}{\text{Xawaare}}$$

Halbeegyada waqtiga waa saacad iyo ilbiriqsiyo

$$\text{fogaanta la socday} = \text{waqtiga uu qaadatay} \times \text{Xawaare}$$

Halbeegyada fogaanta waa mitir iyo kiilomitir

Tusaalooyin:

(i) 40 m / ilb u beddel km / saac

U beddelidda 40 m / ilb oo loo beddelo km / saac waxa ay la mid tahay 40 m oo loo beddelo km iyo 1 ilb oo loo beddelo saacad.

$$40 \text{ m} = \frac{40}{1000} = 0.04 \text{ km}$$

$$1 \text{ ilb} = \frac{1}{60 \times 60} = \frac{1}{3600} \text{ saac}$$

$$\begin{aligned} 40 \text{ m / ilb} &= 40\text{m} \div 1 \text{ ilbiriqsi} \\ &= 0.04 \div \frac{1}{3600} \text{ saac} \\ &= 0.04 \times 3600 \\ &= 144 \text{ km / saac} \end{aligned}$$

(ii) Wiil ayaa kubbada ku tuuray meel 120 m jirta, xawaaraha kubbada ku socotay waa 24 m / ilbs.

(b) Intee in le'eg ayaa ay tuurayada socotay ilb ahaan ?

(t) Maxaa uu ahaa xawaaraha kubbadda km / sac?

$$\begin{aligned} \text{waqtiga uu qaatay} &= \frac{\text{Fogaanta la socday}}{\text{Xawaare}} \\ &= \frac{120 \text{ m}}{24 \text{ m/s}} \\ &= 5 \text{ Ilbiriqsi} \end{aligned}$$

$$\begin{aligned}
 24 \text{ m /ilbs} &= \frac{1}{60 \times 60} \div \frac{24}{1000} \text{ saac} \\
 &= \frac{24}{1000} \times \frac{60 \times 60}{1} \text{ saac} \\
 &= 86.4 \text{ km / saac}
 \end{aligned}$$

Layli 1

1. U beddel xawaarayaashan km / saac:

b) 10 m /ilbs

t) 15 m/ilbs

j) 25 m/ilbs

x) 30 m/ilbs

kh) 35 m/ilbs

d) 18 m/ilbs

r) 40 m/ilbs

s) 2.5 m/ilbs

sh) 2 m/ilbs

dh) 3 m/ilbs

c) 4 m/ilbs

g) 7 m/ilbs

2. Min guuri oo dhammeystir tusaha soo socda:

Fogaan		Waqti	Xawaare	
			Km / saac	m /ilb
b)	10 km	2 saac		
t)	180 km	3 saac		
j)	90 km	15 saac		
x)		1 saac	72 km/saac	
kh)		45 daq	82 km/saac	
d)	225 km		75 km/saac	
r)		5 ilb	30 m/ilb	
s)		10 ilb	15 m/ilb	

3. Nin ayaa ku qaadatay 18 daqiiqo in uu u socdo fogaan 2016 m ah. U xisaabi xawaaraha:

b) m/ilbs ahaan t) km / saac ahaan

4. Xabbaad ayaa ku socoty xawaare 320 m/ilbs. U qor xawaarahaan km / sac

5. Darawal ayaa nus saac ku jaray fogaan 63 km ah. U tibaax xawaaraha gaariga:

b) km /sac ahaan

t) m/ilbs ahaan

6. Jabaq ayaa ku socotay 1848 km /saac. Waa maxay xawaaraha jabaqda m/ilbs ahaan?

7. Waxa ay qaadatay 15.2 ilbs in la dhammeystiro tartan orod 120 m ah . Waa maxay xawaarahan: (b) m/ilbs ahaan (t) km /saac ahaan?
8. Min guuri oo dhammeystir tusaha soo socda:

Fogaan		Waqti	Xawaare	
			Km /saac	m / ilb
a)	20 km	2 saac		
b)	200 m	20 ilbs		
c)	900 m	2 ilbs		
d)		90 daq	72 km/saac	
e)		45 daq	90 km/saac	
f)	225 km			10 m/ilbs
g)	45 km		30 km/saac	
h)		5 ilbs	108 km/saac	
i)	720 m		54 km/saac	

10. Jadwalka safar lagu tegayo dugsii ku yaalla Baraawe ayaa hoos lagu muujiyay. Fogaanta u dhexaysa Muqdisho iyo Baraawe waa 295 km.

Wagtiga	
0715saac	Mogadishu ayaa laga tegay
0915saac	Meel 160 km u jirta ayaa loo joogsaday cabbitaan
1000saac	Safarkii ayaa dib loo bilaabay
1130saac	Baraawe ayaa tegay.
1600saac	Baaraawe ayaa uu ka soo tegay

- b) U xisaabi xawaaraha km / sac ahaan inta aysan u joogsan cabbitaanka ka hor.
- t) Xisaabi fogaanta min Baraawe ilaa markii ay u joogsadeen cabbitaanka.
- j) Xisaabi celcelinta xawaaraha qaybta labaad ee safarka.
- x) safarka soo noqodka min Baraawe ilaa Mogadishu celcelinta xawaaraha waxa uu ahaa 60 km /sac. Xisaabi waqtiga imaashaha Mogadishu.
11. Kubbad ayaa lagu laaday xawaare 45 km / sac waxa ay socotay 2 ilbs inta uusan cayaartoy kale dhexda ka qabsan. Waa maxay fogaanta kubhada soo socotay inta aan dhexda laga qabsan?

Celceliska xawaare

Waxa dhici karta in uu safarku noqdo labo qaybood ama ka badan.

$$\text{Celceliska xawaare} = \frac{\text{Fogaanta la socday}}{\text{Waqtiga uu qaatay}}$$

Tusaalooyin:

(i) Faarax waxa uu socdaa 90 km min Baydhabo ilaa Wajid, waxa ay ku qaadataa 2 saac.

Ka dibna 50 km ayaa uu socday min Waajid ilaa Xuddur oo ku qaadatay hal saac.

Waa maxay:

b) xawaarihiisa min Baydhabo ilaa Waajid

t) xawaarihiisa min Waajid ilaa Xuddur

j) celceliska xawaarihiisa min Baydhabo ilaa Xuddur

b) xawaaraha min Baydhabo ilaa Waaji = $\frac{90 \text{ km}}{2 \text{ saac}} = 45 \text{ km/saac}$

t) xawaaraha min Waajid ilaa Xuddur = $\frac{50 \text{ km}}{1 \text{ saac}} = 50 \text{ km / saac}$

j) celceliska xawaaraha min Baydhabo ilaa Xuddur = $\frac{140}{3}$
= 46.67 km / saac

(ii) Saciid gurigiisa ayaa uu ka baxa waxa ku socda 10km/saac muddo 30 daq. Ka dibna waxa uu 15 daq sugaa bas , ka dibna waxaa uu u socdaalaa meel jirta 40 km xawaaruhuna waxa uu ahaa 80 km / saac. Xisaabi:

b) wadarta fogaanta uu socday

t) wadarta waqtiga ay ku qaadatay

j) cecelinska xawaaraha safarkiisa oo idil.

b) wadarta fogaanta uu socday = socodkii lugta + socodkii baska

$$= 5 \text{ km} + 40 \text{ km} = 45 \text{ km}$$

t) wadarta waqtiga ay ku qaadatay = waqtiga lugta + waqtiga sugidda + waqtiga baska

$$= \frac{1}{2} + \frac{1}{4} + \frac{40}{80} = 1 \frac{1}{4} \text{ saac}$$

j) cecelinska xawaaraha safarkiisa oo idil. = $\frac{\text{Wadarta fogaanta}}{\text{Wadarta waqtiga}}$

$$= \frac{45}{1 \frac{1}{4}}$$

$$= 45 \div \frac{5}{4} = 45 \times \frac{4}{5} = 36 \text{ km/saac}$$

Layli 2

- Gabar ayaa 12 ilbs boodboodaysay . 3da ilb ee hore waxa ay boodboodaysay 8m , 4tii ilb ee ku xigay waxa waxa ay boodboodaysay 12m oo dheeraad ah oo 5 tii ilb ee ugu dambeysay waxa ay bood - boodday 9 m. waa maxay xawaaraha heer kasta? Waa maxay celcelinka xawaaraha?
- Min guuri oo dhammeystir tusahan:
Safar kasta waxa uu leeyahay labo marxaladood . Xisaabi xawaaraha marxallad kasta ka dibna wadarta fogaanta, wadarta waqtiyada, iyo celceliska xawaaraha .

Marxaladda 1			Marxaladda 2			Wadarta safarka		
fogaan	waqti	Xawaare	fogaan	waqti	Xawaare	Wadarta fogaanta	Wadarta waqtiga	Wadarta Xawaaraha
28 km	7saac		40 km	8saac				
64 km	8saac		46 km	6saac				
15 km	3saac		45 km	5saac				
72 km	8saac		105 km	5saac				
35 km	5saac		18 km	2saac				
16 km	4saac		20 km	5saac				
25 km	5ilbs		63 km	9ilbs				
10 km	2ilbs		56 km	7ilbs				
16 km	4ilbs		20 km	2ilbs				
60 km	5ilbs		120 km	20ilbs				

- Socod ayaa qaatay $3\frac{1}{2}$ saac oo celcelinska xawaarahu yahay 50 km /saac. Waa maxay fogaanta uu socday ?
- Shaag bushkileeti ayaa leh dhexroor 84 sm. Waxa ay samaysaa celcelis ahaan saddex wareeg ilbiriqsiyiiba . Immisa ayaa ay qaadanaysaa in uu u socdo 182km?
- Safar baaskiil ayaa Jaamac waxa ay ku qaadatay 4 saac in uu ka ambabaxo Magaalada C oo uu gaaro magaalada D isaga oo ku socda celclis xawaare 21 km / saac. Ka dibna waxa uu u socdaalay magaalada E asiga oo ku socda xawaare celcelis dhan 9 km /saac. Maxaa uu ahaa celceliska xawaarihiisa min magaalada C ilaa E?
- Darawal ayaa damcay in uu ku soodaalo inta u dhexaysa magaallooyinka A iyo B . Ka dib markii uu socday $2\frac{1}{2}$ saac waxa ka banjaray shaag oo ku qaadatay 45 daq in uu hagaajiyo. Waxa uu socday 4 saac inta uu san gaarin magaalada B. Haddii celceliska xawaarihiisu uu ahaa 76 km / saac:

- b) Immisa ayaa ay magaalada B ka fog tahay magaalada A?
- t) Immisa ayaa uu ahaan lahaa celceliska xawaarihiisa haaddii shaaggu aanu banjari lahayn?
7. Wiil ayaa bayskil ka kaxeeyay gurigiisa isaga oo u socda dugsiga oo u jira 5km, waxa uu socday 20 daqiiqo . Ka dib waxa uu u sii gudbay webiga oo u jira dugsiga 4 km waxa ayna ku qaadatay 25 daqiiqo:
- b) Waa maxay xawaaraha uu ku sacday min guriga ilaa dugsiga km/sac ahaan?
- t) Waa maxay celceliska xawaaraha safarkiisa oo idil min guriga ilaa webiga?
8. Nin ayaa gurigiisa ka bilaabay ruclayn ilaa suuqa ugu dhaw ee u jira 25km. Celceliska xawaaraha rucleyntiisa waxa ay ahayd 5 m/ilb. Immisa saac ayaa ay ku qaadatay in uu gaaro suuqa ?
9. Darawal ayaa waxa uu bilaabay saacaddu markay ahayd 0745 saac in uu u safro meel u jirta 420 km. Gaariga waxa uu ku waday xawaare celceliskiisu yahay 80 km / sac si uu u gaaro meesha uu socday waqtigii loogu talagalay. Haseyeeshe, $1\frac{1}{2}$ saac ka dib waxa ka fariistay taayir oo ku qaadatay hagaajintiisa 30 daqiiqo.
- b) Saacaddee ayaa uu bilaabay in uu gaaro meesha uu u socday?
- t) Xawaarehee ayaa ay tahay in uu ku wado ka dib marka uu taayarka hagaajiyay si uu u gaaro waqtigii uu bilaabay in uu tago meeshii uu u socday?

Xisaabinta waqtiga ay qaadanayso

Tusaalooyin:

- (i) Shir ayaa bilawday saacaddu markii ay ahayd 08 : 15sac waxa uuna dhammaaday saacaddu markay ahayd 13 : 25 saac. Immisa saac ayaa uu qaatay shirka ?
- Saacadda uu bilawday = 0815
- Saacadda uu dhammaaday = 1325
- waqtiga uu qaatay = Saacadda uu dhammaaday - Saacadda uu bilawday
- = 1325 - 0815
- = 0510
- \therefore waqtiga uu qaatay = 5 saac iyo 10 daqiiqo
- (ii) Xassan waxa uu guriga yimid 3:00 gd ka dib markii safar uu ku soo jiray 8 sac. Waqtigee ayaa uu bilaabay safarkiisa?
- Waqtiga uu yimid = 3:00gd ama 1500 saac
- Waqtiga ay ku qaadatay = 8 saac
- Safarka waxa uu soo bilaabay 1500 - 8 saac = 0700 saac
- \therefore Safarka waxa uu soo bilowday 7:00gh.

Layli 3

Adeegso Jadwalkan si aad uga jawaabto su'aalaha hoose.

Moqdishu	Ka tegid.	08:30
Jowhar	Ka tegid.	09:15
Baladweyne	Ka tegid.	10:15
Galkacyo	Ka tegid.	11:15
Garoowe	Ka tegid.	11:45
Qardho	Ka tegid.	12:10
Bosaaso	Ka tegid.	12:55
Laascaanood	Ka tegid.	13:55
Berbera	Ka tegid.	14:20
Hargeysa	Ka tegid.	14:55

- Immisa ayaa ay ku qaadatay min:
 - Mogadishu ilaa Hargeysa
 - Qardho ilaa Laascaanood
 - Galkacayo ilaa Berbera
- Waa maxay waqtiga ugu dheer ee u dhexeeya labada astaan ee ku jira jadwalka?
- Waa maxay waqtiga ugu gaaban ee u dhexeeya labada astaan ee ku jira jadwalka?
- Immisa ayaa ay qaadantay in laga tago min Garowe ilaa Bosaaso?
- Immisa ayaa ay qaadantay in laga tago min Baladweyne ilaa Berbera?
- Leyla waxa ay timid guriga saqda dhexe ka marka ay safar ku soo jirtay 6 saac iyo 30 daqiiqo. Goormay soo bilaawday safarka?
- Saacad ayaa ku koradha 4 daqiiqo 24kii saac. Haddii maalintii Sabtiga duhurkii ay muujinaysay saacad sax ah, maxaa ay muujin doontaa jimcaha ku xiga?
- Saacad derbi ayaa dib u dhacda 2 daqiiqo hal saac walba. Haddii la saxay markii saacaddu ahayd 07 : 35. Maxa uu noqonayaa waqtiga saacadda 17 saac ka dib?

9 LACAG

Biilal

Walax	Qiime (Sh)
Sabuun	2400 u shiiba
Bur	6000 kiiladiiba
Caano	2500 litirkiiba
Baradho	6000 kiiladiiba
Sonkor	7000 kiiladiiba
Bariis	5500 kiiladiiba

Walax	Qiime (Sh)
Subug	30 000 kiiladiiba
Saliid	14 000 litirkiiba
Hilib	20 000 kiiladiiba
Basal	4000 kiiladiiba
Yaanyo	7000 kiiladiiba
Baasto	13 000 kiiladiiba
Moos	500 midkiiba

Layli 1

1. Adeegso liiska qiimaha si aad u dhammaystirto biilashan:

b) 3 kg sonkor 4 kg basal 4 kg bariis 2 kg hilib 2 kg subag	t) $\frac{1}{2}$ kg baradho 3 l saliid 1 kg yaanyo 2 kg baasto	j) $2\frac{1}{2}$ kg hilib 2 kg bur $1\frac{1}{2}$ kg sonkor
x) 3 kg yaanyo $2\frac{1}{2}$ kg bariis $1\frac{1}{2}$ l caano 2 ul oo sabuun ah	kh) $1\frac{1}{2}$ kg subug 4 kg basal 3 kg bariis 5 muus	d) 12 kg sonkor 6 kg bur 2 gasac saliid midkiiba 3 l ah 6 ul oo sabuun 9 kg bariis 7 kg baradho
r) 3 l caano 2 kg bariis $2\frac{1}{2}$ kg basal 3 kg baasto 7 muus	s) $5\frac{1}{2}$ kg subug $1\frac{1}{2}$ kg hilib 3 ul oo sabuun ah 5 kg bariis 2 l saliid	

2. Jaamac waxa uu soo iibsaday 88 kg oo sonkor ah, 12 kg oo abariis ah, 10 kg hilib ah iyo 6 kg oo basal ah. Diyaari biilka jaamac
3. Yuusuf waxa uu soo iibsaday caano. Waxa uu bixiyay 18 noot oo min sh 1 000, waxaana u soo hartay sh 500. Immisa litir oo caano ah ayaa uu iibsaday

Faa'iido wadaag

Faa'iido wadaaggu waa boqolleyda qiimaha gadidda ee uu siiyo gaduhu qofka wax iibsadey ama uu ku dallaco kharash hawlihii loo qabtay.

Tusaalooyin:

- (i) Shirkad ayaa ku dallacda 3% inta gadanta ilaa sh 100 000 oo 2% inta gadanta ee kasaraysa Sh 100 000. Waa maxay faa'iido wadaaggu uu helayo cali marka waxa uu gaday ay noqoto

Sh 580 000?

$$\begin{aligned} \text{Faa'iidu wadaagga Sh 100 000 ee hore} &= 3\% \text{ ka } 100\ 000 \\ &= \frac{3}{100} \times 100\ 000 \\ &= \text{Sh } 3000 \end{aligned}$$

$$\begin{aligned} \text{Faa'iidu wadaagga (580000 - 100000)} &= 2\% \text{ ka } 480000 \\ &= \frac{2}{100} \times 480\ 000 \\ &= \text{Sh } 9600 \end{aligned}$$

$$\begin{aligned} \text{wadarta Faa'iidu wadaagga} &= 3000 + 9600 \\ &= \text{Sh } 12\ 600 \end{aligned}$$

- (ii) Cadnaan waxa uu bishii hela Sh 325 000 oo lagu daray 5% faa'iido wadaagga waxa uu gado. Immisa ayaa uu bishii hela marka uu waxa uu gaday wadartoodu ay tahay Sh 945 000?

$$\begin{aligned} \text{Faa'iido wadaagga} &= 5\% \text{ ka } 945\ 000 \\ &= \frac{5}{100} \times 945\ 000 \\ &= \text{Sh } 47\ 250 \end{aligned}$$

$$\begin{aligned} \text{Mushaarka cadnaan} &= 325\ 000 + 47\ 250 \\ &= \text{Sh } 372\ 250 \end{aligned}$$

- (iii) Gade ayaa ka helay faa'iido wadaag $5\frac{1}{2}\%$ ah walxo la iibiyay. Hal bil waxa uu helay faa'iido wadaag 6 600 000. Xisaabi qiimaha waxa uu gaday .

$$5\frac{1}{2}\% \text{ waxa uu gaday} = 6\,600\,000$$

$$\text{wadarta qiimaha waxa la gaday} = 100\%$$

$$\text{waxa la gaday} = \frac{100 \times 6\,600\,000}{5\frac{1}{2}}$$

$$= \frac{20}{5} \times \frac{100 \times 6\,600\,000 \times 2}{1}$$

$$= \text{Sh } 264\,000\,000$$

Layli 2

- Ganacsade ayaa bixiya faa'iido wadaag ku saleysan waxa uu gaduhu iibiyo.faa'iido wadaaggu waa sida soo socta : 6% gadista hore ee Sh 180 000 iyo 4% wixii ka sarreeya Sh 180 000. Immisa ayaa uu bixinaya haddii gadiddu tahay;
 - Sh 400 000
 - Sh 1 200 000
 - Sh 860 000
 - Sh 480 000
 - Sh 3 160 000
 - Sh 725 000
- Axmed waa nin baabuurta iibiya. Waxa uu toddobaadkiiba qaata Sh 500 000 waxa kale uu hela 3% waxa uu gado. Xisaabi wadarta waxa uu gaday in ka badan 4 toddobaad , haddii waxa uu gaday mudadaas gaarayaan 7 000 000
- Caynab waxa uu helaya Sh 360 000 faa'iido wadaag markii uu gado sh 12 000 000. waa maxay boqolleyda faa'iido wadaagga uu ku shaqeeyo ?
- Shamis waxa la siiyaa 10% faa'iido wadaag ah waxa ay gaddo hal toddobaad, faa'iido wadaaggeedu waxa uu ahaa Sh 820 000. Maxa uu ahaa waxa ay gadday toddobaadkaas ?
- Shariif waxa uu helaa $2\frac{1}{2}\%$ oo faa'iido wadaag ah waxa uu gado iyo mushaar Sh 300 000 bishii. Hal bil waxa uu helay sh 447 000. Maxa uu ahaa gadidda bishaas?
- Qof iibiye ah ayaa hela faa'iido wadaag 8% waxa uu gado. Xisaabi wadarta waxa uu gaday haddii faa'iido wadaaggiisu saxa ah yahay ;
 - Sh 400 000
 - Sh 1 200 000
 - Sh 860 000
 - Sh 480 000
- . Qof iibiye ah ayaa hela faa'iido wadaag ah Sh 180 000 bishiiba, xisaabi wadarta waxa uu gaday haddii faa'iido wadaaggiisu saxa ah yahay;
 2. 3%
 - 5%
 - 5.5%
 - 7%.
- Maryan waxa ay ka heshaa faa'iido wadaag badeeco kasta ee ay suuq gayso.

- badeecada A faa'iido wadaageedu waa 3% waxa kale oo ay heshaa Sh 4 500 000.
- badeecada B faa'iido wadaageedu waa $7\frac{1}{2}\%$ waxa kale oo ay heshaa Sh 300 000
- badeecada C faa'iido wadaageedu waa $4\frac{2}{3}\%$ waxa kale oo ay heshaa Sh 500 000

Xisaabi wadarta waxa ay ka gadday saddexda badeecadood .

9. Qasacaddii caano ee la gadaba , dukaanlaha waxa uu helayaa faa'iido wadaag ah 5%, halkii rooti ee la iibshaba waxa uu helayaa $7\frac{1}{2}\%$ oo faa'iido wadaag ah . Hal maalin faa'iido wadaagga uu ka helay caanaha waxa uu ahaa Sh 50 000, rootigana Sh 39 900. Xisaabi wadarta uu gaday ee caanaha iyo rootiga maalintaas .
10. Nin ayaa garoon u iibiya tikado. Waxa uu ka helaa 5tii tikit uu iibiyaba Sh 1000. Immisa ayaa uu ka helayaa haddii uu iibiyo 185 tikit?
11. Ijaar ururiye ayaa faa iido wadaaggiisu yahay $4\frac{1}{2}\%$ inta uu soo ururiyo . Bil ayaa waxa uu soo ururiyay Sh 4 214 000 oo ijaar ah. Immisa lacag ah ayaa uu helaya ?
12. Ibiye qalab guri ayaa hela 7% oo faa'iido wadaag ah. Immisa ayaa uu halaya marka uu gado :
 - 44 kursi oo midkii yahay Sh 73 000 ;
 - 11miis oo midkii yahay Sh 21 950 ;
 - 5 sariir oo middii tahay Sh 169 000?
13. Shirkad ayaa ku dalacda macamiisha $2\frac{1}{2}\%$ oo faa'iido wadaag ah markii loo sarifo jeeg. Immisa ayaa macmiilka bixinaya marka loo sarifo jeeg Sh 4 000 000 ah ?
14. Nin gade ah ayaa la siiyaa mushaar Sh 2 500 000 bishii iyo 3% oo faa'iido wadaag u ah qiimaha badeecada uu iibiyo. Hal bil waxa uu iibiyay badeeco qiimaheedu tahay Sh 430500. Immisa lacag ayaa uu helay bishaas?
15. Haweenay ayaa waxa ay la shaqaysaa gawaari iibin oo ay ka hesho faa'iido wadaag 1% wixii ay iibiso. Immisa faa'iido wadaag ayaa ay helaya marka ay iibiso:
 - Gaari la soo isticmaalay oo ah Sh 3 900 000;
 - Qalab dayactir oo ah Sh 1 700 500;
 - Baabuur ah Sh 60 000 000?

Sicir dhimid iyo boqolleyda sicir dhimidda

$$\% \text{ sicir dhimidda} = \frac{\text{Sicir dhimid}}{\text{qiimaha suuqa}} \times 100\%$$

Tusaalooyin:

(i) Sicirka suuqa ee gaari waxa uu ahaa Sh 6 000 000.

Macmiil ayaa bixiyay Sh 5 400 000 ka dib markii loo oggolaaday sicir dhimid:

b) Immiisa lacag ayaa ay ahayd lacagta laga dhimay?

t) Waa maxay boqolleyda sicir dhimidda ?

b) Sicirka suuqa = Sh 6 000 000

Qiimaha iibinta = Sh 5 400 000

$$\begin{aligned} \text{sicir dhimid} &= \text{Sicirka suuqa} - \text{Qiimaha iibinta} \\ &= 6\,000\,000 - 5\,400\,000 \\ &= \text{Sh } 600\,000 \end{aligned}$$

$$\begin{aligned} \% \text{ Sicir dhimid} &= \frac{\text{Sicir dhimid}}{\text{qiimaha suuqa}} \times 100\% \\ &= \frac{600\,000}{6\,000\,000} \times 100\% \\ &= 10\% \end{aligned}$$

(ii) Bakhaar ayaa ku dhawaaqay sicir dhimid 10% badeeco kasta . Immisa ayaa uu macmiilku siisanaya raadiyo sicirkiisu suuqa ka joogo yahay Sh 65 000?

Sicirka suuqa = Sh 65 000

sicir dhimid = 10% ka 65 000

$$= \frac{10}{100} \times 65\,000$$

= Sh 6 500

Inta uu siistay = 65 000 - 6 500

= Sh 58 500

ama

% inta uu bixiyey = (100 - 10)

= 90%

Inta uu siistay = $\frac{90}{100} \times 65\,000$

= Sh 58 500

Layli 3

1. Xisaabi boqolleyda sicir dhimidda la siiyey Cali marka uu qalin ka bixiyay Sh 9500 iyada oo sicirka suuqa uu ka joogo qalinka uu ahaa Sh 10 000.
2. Sicirka suuqa ee shaar waxa uu ahaa Sh 150 000. Macmiil ayaa bixiyay Sh 135 000 ka dib markii loo oggolaaday sicir dhimid. Immiisa ayaa ay ahayd sicir dhimidda?
3. Sicirka suuq ee buug waa sh 1 600. Muna waxa ay bixisay 1 520 ka dib markii loo oggolaaday sicir dhimid. Maxa ay ahayd boqolleyda sicir dhimidda?
4. Warsame waxa uu siistay Sh 176 000 joog dhar ah oo qiimihiisa laga dhimay sicirka suuqa Sh 44 000 .
 - b) Maxa uu ahaa sicirka suuqa?
 - t) Maxa uu ahaa boqolleyda sicir dhimidda?
5. Marka ay aamino heshay sh 3500 sicir dhimid ka dib, waxa ay ka bixisay taangi biyood sh 66 500 .

Xisaabi:

 - b) Sicirkii ugu horreeyay taangiga
 - t) Boqolleyda sicir dhimidda.
6. Xuseen waxa uu shaar ka bixiyay Sh 120 000 ka dib markii 5% oo sicir dhimid ah la siiyay. Maxa uu ahaa sicirka suuqa ?
7. Aadan waxa laga dhimay qiimaha miis 15 %. Haddii uu bixiyey sh 720 000. Xisaabi Sicirka asalka ee miiska?
8. Macmiil ayaa walax ka bixiyay Sh 500 000 oo qiimaheeda suuqa ahaa Sh 600 000. Xisaabi boqolleyda sicir dhimidda loo sameeyay .
9. Dukaanle ayaa waxaa uu ku iibiyaa labo sarwaal sh 120 000 midkiiba. Haddii tan ay tahay markii la dhimo 25%, Xisaabi sicirka suuqa ee sarwaalada

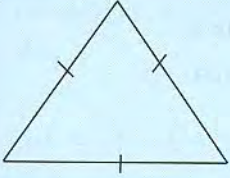
10. 15% oo sicir dhimid ah ayaa lagu sameeyay walax suuqa ka joogta sh 200 000 . Xisaabi sicirka iibinta iyo sicir dhimidda dhabta ah.
11. Gaari ayaa suuqa ka jooga Sh 4 000 000. haddaba qofkii danaynaya waxa loo ballan qaaday in 8% oo sicir dhimid ah loo sameynayo. Waa maxay qiimaha iibinta ?
12. Shaar ayaa suuqa ka jooga sh 1 800. Waxa loo fidiyay sicir dhaaf 13 % ah. Waa maxay sicir dhaafka iyo qiimaha iibinta?

10 JOOMETERI

Noocyada saddexagallada

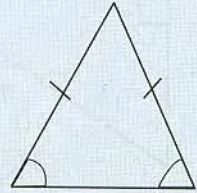
Saddexagallado waxa lagu kala sooci karaa iyada oo loo eegayo dhinacyada ama xaglaha ama labaduba

Ku kala soocidda dhinacyaha



Saddexgale siman waxa u leeyahay saaddex dhinac iyo saddex xaglood oo isle'eg.

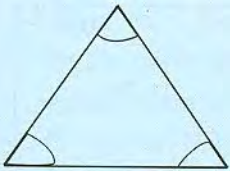
Saddexagal labaale waxa uu leeyahay labo dhinac oo isle'eg iyo labo xaglood oo isle'eg.



Saddexagal ismaleke ah ma laha dhinacyo isle'eg iyo xaglo isle'eg.

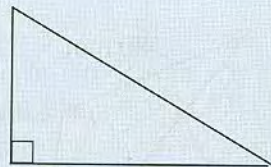


Ku kala soocidda xaglaha

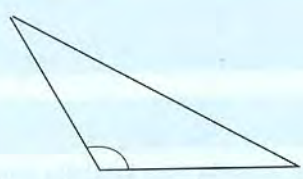


Saddexagale fiiqan waxa uu leeyahay saddex xaglood oo fiiqan. Haddii saddexda xaglood ay isle'eg yihiin markaa saddexagalku waa saddexagal xaglo siman .

Saddexagal qumman waa saddexagal leh hal xagal qumman. Labajibbaarka shakaalku waxa uu le'eg yahay wadarta labajibbaarada dhinacyada kale.



Saddexagal furan waa saddexagalka leh hal xagal furan.



Layli 1

Saddexagalladan kuwee ah:

b) ismale'ke

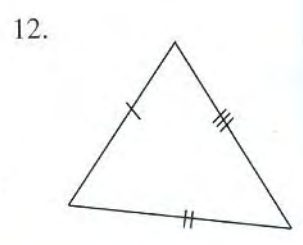
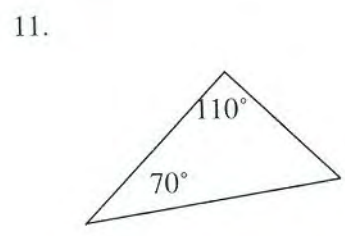
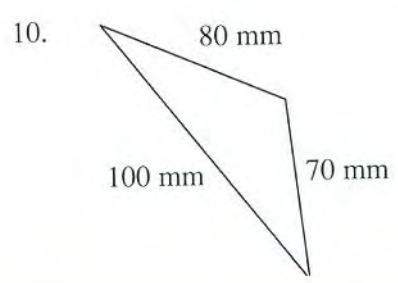
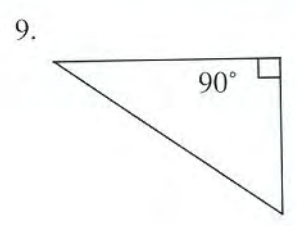
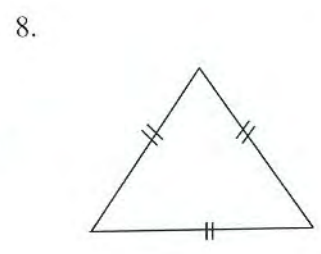
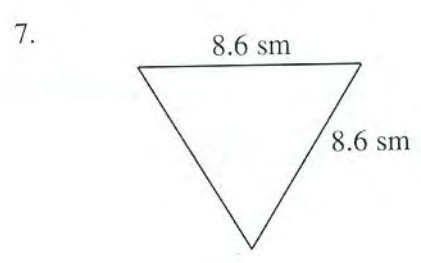
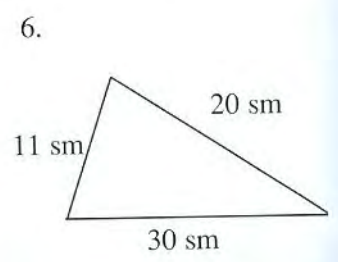
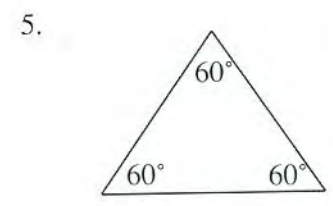
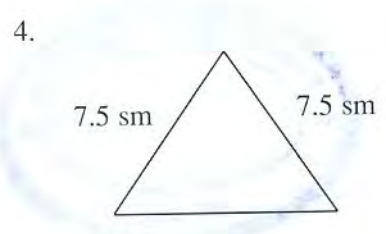
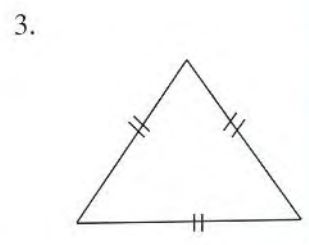
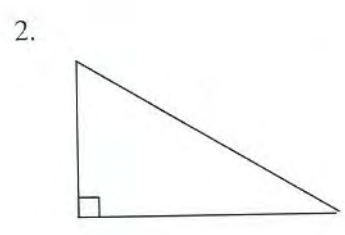
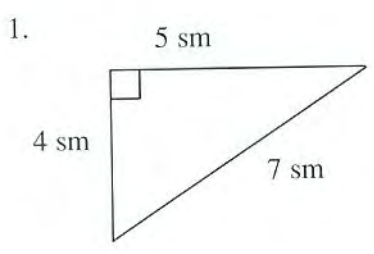
t) saddexagal qumman

j) labaale

x) siman

kh) fiiqan

d) furan



Dhisidda saddexagallada

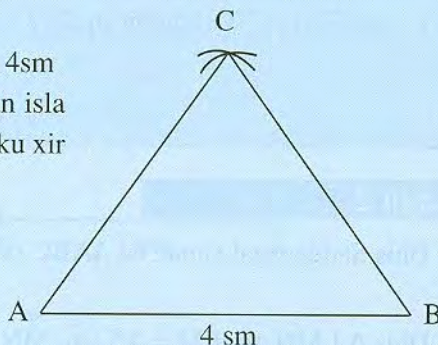
Tusaalooyin:

(i) Si loo dhiso saddexagale siman:

Sawir $AB = 4$ sm. U qaado A xuddun iyo gacan 4sm ku sawir qaanso AB korkeeda. Uqaado B xuddun isla gacanka ka samee qaanso tii hore ka jareysa C. Isku xir BC.

$$AB = BC = CA = 4\text{sm}$$

Hubi in xaglaha oo idil isla eg yihiin.

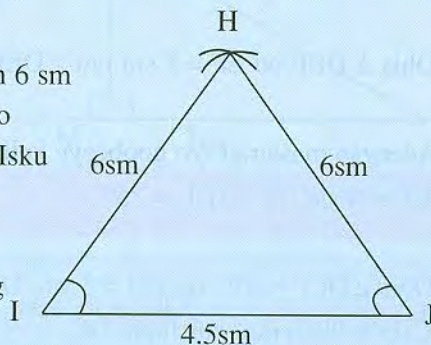


(ii) Si loo dhiso saddexagale labaale:

Sawir $IJ = 4.5$ sm. U qaado I xuddun iyo gacan 6 sm ku sawir qaanso korka I J. u qaado xuddun J iyo gacan 6 sm sawir qaanso tii hore ka jaraysa H. Isku xir HI iyo HJ

$$HI = HJ = 6\text{sm.}$$

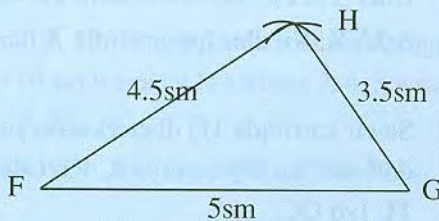
Xaglaha salka ΔHIJ iyo ΔHJI waa in ay isle'eg yihiin



(iii) Si loo dhiso saddexagale ismale'eke ah:

Sawir $FG = 5$ cm. Xuddunta F iyo gacan 4.5 sm ku sawir qaanso korka FG. Xuddun G gacan 3.5sm sawir qaanso tii hore ka jaraysa H. Isku xir FH iyo GH.

Hubi in xaglaha oo idil ay kala baaxad duwan yihiin.

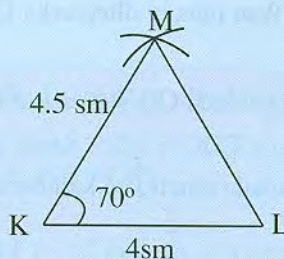


(iv) Si loo dhiso saddexagale xagal fiiqan :

Sawir xarriiqda $KL = 4$ sm.

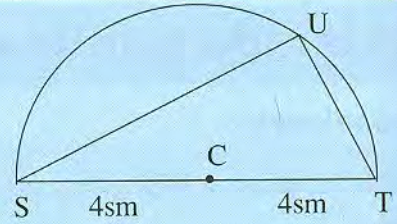
Xagal $\angle MKL = 70^\circ$. Sawir $KL = 4.5$ sm.

Isku xir ML.



(v) Si loo dhiso saddexagale xagal qumman:

Sawir xarriiq leh dherer kasta . U qaado xuddun bartanka xarriiqdan , gacan 5 sm ku sawir xarriiqda nus goobo. Ku calaamadee dhexroorka ST. Ka dooro barta U meeriska isku xir SU iyo TU. Cabbir in $\angle SUT = 90^\circ$



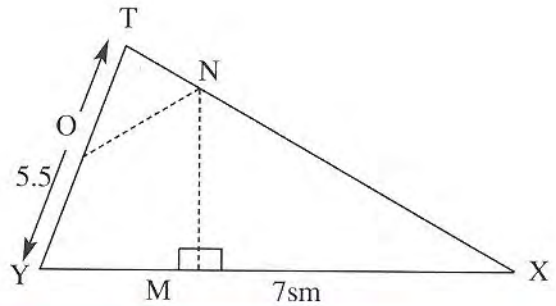
Layli 2

1. Dhis Saddexagal siman ee $\triangle ABC$ oo leh dhinac 5 sm.
2. Dhis $\triangle LMN$ oo $LM = 4.5$ sm, $MN = 6.5$ sm iyo $LN = 7$ sm.
3. Dhis $\triangle TQR$ oo $TQ = QR = 4$ sm iyo xagal $\angle TQR = 130^\circ$.
4. Dhis $\triangle DEF$ oo $EF = 5$ sm iyo $\angle DEF = 45^\circ$ iyo $\angle EFD = 65^\circ$.
5. Adeegso mastarad iyo goobeeye keliya si loo dhiso ? $\triangle JKL$ oo $JK = 3$ sm, $KL = 4$ sm iyo $\angle JKL = 75^\circ$.
6. Dhis $\angle DEF = 45^\circ$ oo $ED = 5$ sm. Dhis qotome min D ilaa EF uu kula kulmo C Cabbir dhererka xarriiqda DC.
7. Dhis $\triangle XYK$ oo $XY = 5$ sm, $YK = 6.5$ sm iyo $\angle XYK = 60^\circ$. Sawir kala baraha $\triangle XYK$. Ku dhis qotome min X ilaa uu kula kulmo baraha W. Waa maxay dheererka XW?
8. Sawir xarriiqda TQ dhererkeedo yahay 8 sm. Ka calaamadi barta R oo ka fog 5 sm T. Dhis qotome ilaa TQ maraya R. Ku calaamadi barta C qotomaha 4.4 sm ka sareysa R. Isku xer TC iyo QC.
 - b) Waa maxay baaxada $\angle TCR$?
 - t) Waa maxay dheererka QC?
9. Xarriiqada CD waa hal dhinac oo ka mid ah dhinacyada $\triangle CDE$ oo $CD = 6$ sm, $DE = 4$ sm iyo $\angle EDC = 120^\circ$. Sawir kalabaraha xagasha EDC iyo qotomo baraha xarriiqda DE. Labada xarriiq ee kalabara waxa ay ku kulmayaan F. Waa maxay baaxadda xagasha CDF?

10. Sawir xagal TQR oo $TQ = 5.4$ sm, $QR = 4.0$ sm, $RT = 4.6$ sm. Haddaa sawir qotome min T ilaa RQ, min Q ilaa TR, Min R ilaa TQ. Maxa ka ogaatay saddexdan qotome?
11. X waa bar ku taal YK oo $YX = 7$ sm and $XK = 3$ sm (Eeg shaxanka hoose). Dhis qotome WX ilaa YK maraya X. Sawir xagasha $XYW = 55^\circ$ oo xarriiqda YW kula kulmaysa qotomaha W. Kala bar xagasha XYW. Kala baraha WX ha kula kulmo U. Isku xer WK.
 - (b) Waa maxay dheererka (i) WY? (ii) WX? (iii) WU?
 - (t) Waa maxay baaxada $\angle YWK$?



12. Sawir $\angle XYT$ oo $XY = 7$ sm, $\angle XYT = 66^\circ$, $YT = 5.5$ sm (eeg shaxanka dhinaca ku yaal). Sawir qotome baraha XY, si uu N uga jaro XT. Mariinka N ku sawir qotome ilaa XT oo O ka jaraya XY. Cabbir ON.



Xiriirada Baytagooris

Xusuus:

Saddexagale qumman, Bedka labajibbaaranaha ku yaal shakaalka waxa uu le'eg yahay wadarta bedadka labada dhinac ee gaaban.

Saddexagallada leh cabbiraadaha 3, 4, 5 iyo 5, 12, 13

Saddexagalada cabbirka dhinacyada la xiriiro 3, 4, 5 ama 5, 12, 13 mar kasta waa saddexagale qumman. Saddexagale leh cabbiraadaha 6 sm, 8 sm iyo 10 sm waxa uu la xiriiraa 3, 4, 5 waayo waxa lagu helay iyada oo lagu dhuftay 2 dhinacyada 3, 4, 5.

Sida oo kale saddexagalka leh dhinacyo $2\frac{1}{2}$ sm iyo $6\frac{1}{2}$ sm iyo 6 m waxa uu la xiriiraa 5, 12, 13 waayo waxa lagu helay iyada oo lagu dhuftay $\frac{1}{2}$ dhinacyada 5, 12, 13.

Tusaalooyin:

- i) Raadi sm ahaan dhererka saddexagal laga sameeyay 5, 12, 13 oo lagu dhuftay
 - b) 4
 - t) 1.2.
- b) dhinacyada waxa ay noqonayaan 5×4 , 12×4 , 13×4 taas oo ah 20sm, 48sm iyo 52sm
- t) dhinacyada waxa ay noqonayaan 5×1.2 , 12×1.2 , 13×1.2 taas oo ah 6sm, 14.4sm, iyo 15.6sm

(ii) Saddexagalladan kuwee ah saddexagal qumman?

b) 9 sm iyo 12 sm iyo 15 sm

t) 11 sm iyo 13 sm iyo 8 sm

b) saddexagalka qumman $a^2 + b^2 = c^2$, halka c ay tahay shakaal oo a iyo b ay yihiin dhererrada dhinacyaha gaaban.

$$c = 15 \text{ sm} \quad c^2 = 225 \text{ sm}^2$$

$$a = 9 \text{ sm} \quad a^2 = 81 \text{ sm}^2$$

$$b = 12 \text{ sm} \quad b^2 = 144 \text{ sm}^2$$

$$a^2 + b^2 = 81 + 144 = 225$$

$\therefore \Delta$ leh dhinacyada waa 9, 12 sm and 15 sm waa saddexagale qumman

t) $c = 13 \text{ sm} \quad c^2 = 169 \text{ sm}^2$

$$a = 8 \text{ sm} \quad a^2 = 64 \text{ sm}^2$$

$$b = 11 \quad b^2 = 121 \text{ sm}^2$$

$$a^2 + b^2 = 64 + 121 = 185$$

$\therefore \Delta$ leh dhinacyada waa 11 sm iyo 13sm iyo 8 sm ma aha saddexagale qumman.

Layli3

Saddexagalladan kuwee ah saddexagal qumman?

1) 30 sm iyo 24 sm iyo 18 sm

2) 2.1 sm iyo 2.8 sm iyo 3.5

3) 12 sm iyo 18 sm iyo 20 sm

4) 0.8 sm iyo 1 sm iyo 0.6 sm

5) 42 sm iyo 24 sm iyo 52 sm

6) 15 sm iyo 36 sm iyo 39 sm

7) $4\frac{1}{2}$ sm iyo 6 sm iyo 9 sm

8) 30 sm iyo 78 sm iyo 72 sm

9) 25 sm iyo 60 sm iyo 65 sm

10) 0.24 sm iyo 15 sm iyo 0.3 sm

Saddexagale xagal qumman

Tusaalooyin:

1. Xisaabi dhererka c iyo r:

b) saddexagalka qumman ABC:

$$c^2 = 24^2 + 32^2$$

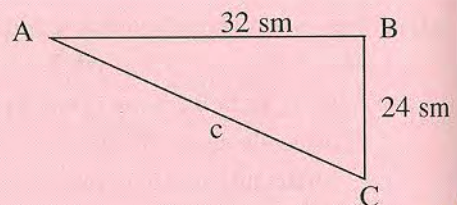
$$= 576 + 1024$$

$$= 1600$$

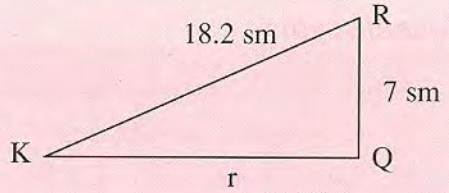
$$c = \sqrt{1600} = 40 \text{ sm}$$

t) Δ KQR

$$7^2 + r^2 = 331.24$$

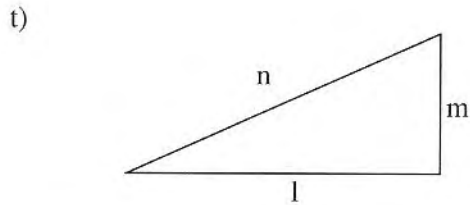
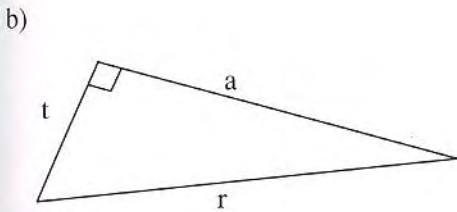


$$\begin{aligned}
 49 + r^2 &= 331.24 \\
 r^2 &= 331.24 - 49 \\
 &= 282.24 \\
 r &= 2 \times 2 \times 2 \times 3 \times 0.7 \\
 r &= \sqrt{282.24} \\
 &= 16.8 \text{ sm}
 \end{aligned}$$

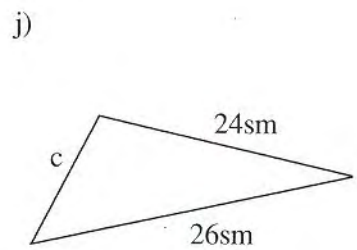
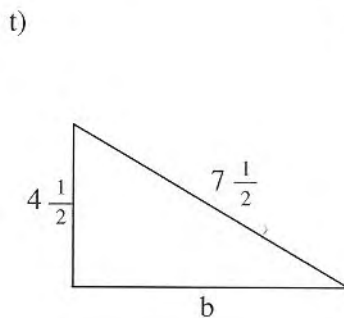
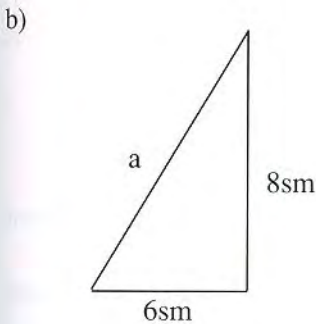


Layli 4

1. Adeegso xiriirka Baytagooris: Qor tibaaxda labajibbaaranayaasha dhicayada ee saddexagale-xagal qumman.



2. Xisaabi dhinaca lagu summadeeyay xarafka ee saddexagallada



3. Xaglogooyayaasha laydi waa 25 sm midkii. Haddii hal dhinac ka mid ah yahay 15 sm, waa maxay dhererka dhinaca kale?

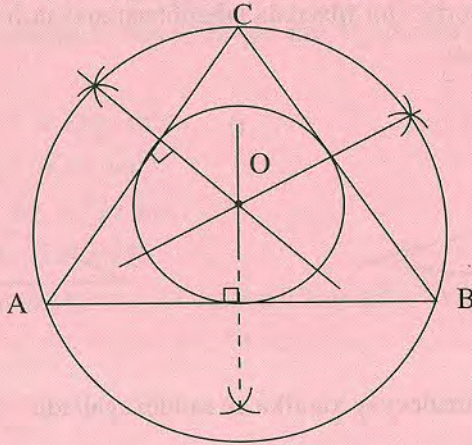
4. Dhererka gobol dhul ah oo laydi ah waa 44 m oo xagalgooyuhuna waa 55, waa maxay ballaca gobolka dhulka ah?

5. Sallaan 5 m ayaa loo adeegsaday in lagu dayactiro dhismo bakhaar . Xagga sare ee sallaanka waxa uu dhulka ka sarreeya 4.5 m. Immisa ayaa uu dhul dhaca sallaanku ka fog yahay derbiga.

Dhex meeraynta saddexagal siman goobo

Tusaalooyin:

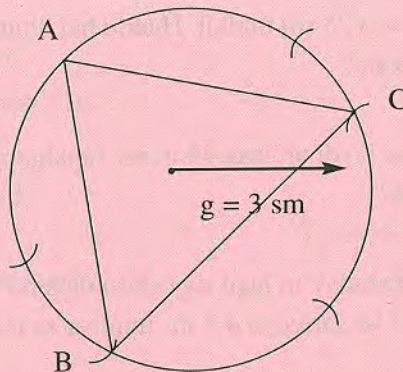
- (i) Si loo dhex meereyo saddexagale siman oo leh dhinac 3 sm ah goobo dhexdeeda:
- Sawir saddexagale siman
 - Sawir qotome baraha AB, BC iyo AC. Ha ku kulmaan baraha barta O.
 - Si loo sawiro qotome baraha AB, u qaado A xuddun, gacan $7\frac{1}{2}$ sm ah ku sawir qaanso xagga sare AB. Xagga hoose sidaa oo kale u qaado B xuddun isla gacanka ku sawir qaanso xagga sare iyo xagga hoose ee AB si ay isugooyaan qaansooyinka.



Xuddunta O iyo gacanka OB , sawir goobo maraysa A, B, C

Sawiridda saddexagale siman oo ku dhex jira goobo

1. Sawir goobo leh gacan 3 sm. ku samee calaamada meeriska
2. Ka dhig gacanka isku mid , saar goobeeyaha calaamada , oo ka calaamadi meeriska fogaantan ee gudubka qayb kale meeriska oo sii samee calaamad kale.
3. Ku ceceli ilaa aad ka hesho lix calaamadood wareega meeriska oo aad kaga soo noqoto meesha aad ka bilaawday
4. Hadda isugu xir calaamadaha si talantaali ah si aad u sameyso saddexagal. Saddexagal noocee ah weeye?

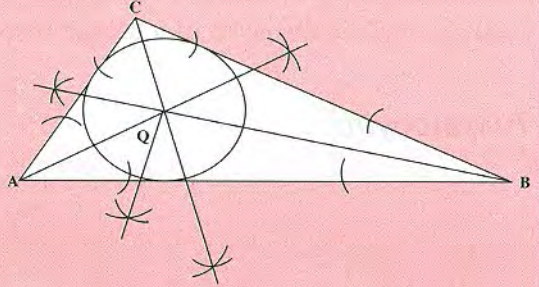


Goobo ku dhex meeraysan saddexagal

Goobo ku dhex meeraysan saddexagal

Tusaalooyin:

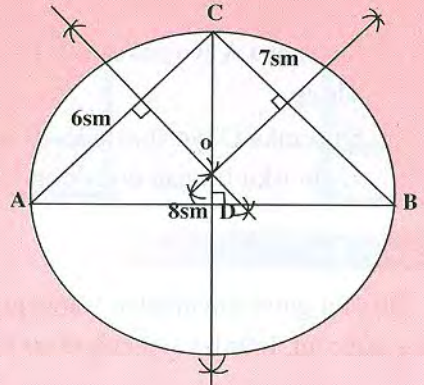
1. Si goobo u dhex maerto saddexagal leh dhinacyada 4 sm , 5 sm , 6 sm
 - i) Sawir saddexagal ABC oo leh dhinacyada 4 sm , 5 sm , 6 sm
 - ii) Ka sawir qotome baraha AB, BC iyo AC. Kala bareyaasha ha ku kalmaan barta O.
 - iii) Ka sawir barta O qotome AB ee kula kulma AB barta D .
 - iv) U qaado barta O xuddun, OD gacan , sawir goobo taabanaysa dhinacyada saddexagalka ABC



Goobo dul meeran Saddexagal

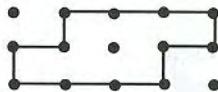
Si saddexgalka 6 cm, 7 sm , 8 sm loo dul meeriyo goobo

1. Sawir ΔABC leh dhinacyada 6 sm, 7 sm , 8 sm
2. Sawir qotoma baraha dhinac kasta si ay ugu kulmaan barta O iyada oo O loo qaadanayo xuddun oo OA, OB ama OC gacan noqonaysa sawir goobo marta saddexda gees ee saddexagalka



Shaxannada isku sargo'an

Ku min guuri gobolkan waraaq dhibco leh. U qaybi gobolka qaybo isle'eg. Ma heli kartaa in ka badan hal dariiq si loo sameeyo?



Siyaabaha qaarkood halkan ayaa lagu muujiyay . Ma ku fikiri kartaa siyaabo kale?



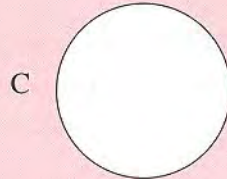
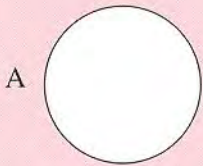
U kala jar gobollada labo qaybood oo isle'eg . Isdul saar qaybaha. Maxa ka ogaanaysa? Waxa aad ogaanaysa in hal qayb ay si sax u dul saarmeeyso qaybta kale. Qaababka si kasta waa iskula eg yihiin. Marka waxa aan leenahay qaababka waa is le'eg yihiin.

Shaxannada leh isku baaxad iyo isku qaab waa isku sargo'an yihiin. Shaxanada isku sargo'an waxa ay leeyihiin dhinacyo isku beegan oo isle'eg iyo xaglo isku beegan oo isle'eg.

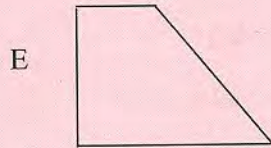
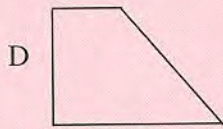
Tusaalooyin:

1. Labo shaxan ayaa isku sargo'an waa kuwee ?

i)



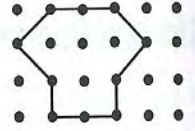
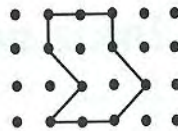
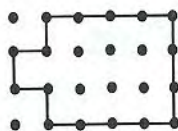
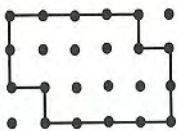
ii)



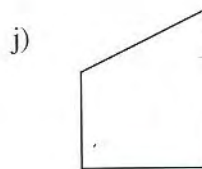
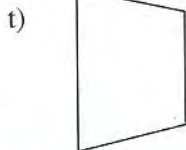
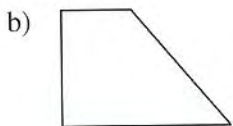
- a) Shaxanka A iyo shaxanka C waa isku sargo'an yihiin. Waa goobooyin leh gacno isle'eg .
- b) Shaxanka D iyo shaxanka E waa isku sargo'an yihiin. Waxa ay leeyihiin dhinacyo iyo xaglo isku beegan oo isle'eg.

Layli 5

1. Ku min guuri goballadan waraaqda dhibcaha leh. U qaybi gobol kasta labo qaybood oo isku sargo'an. Immisa siyaabood oo kala duwan ayaa aad u sameyn kartaa ?

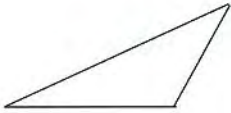


2. Qaabkee ku sargo'an koorta midgta xigta .

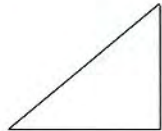


3. Tax lammaanayaasha saddexagal ee u muuqda in ay isku sargo'an yihiin

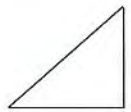
b)



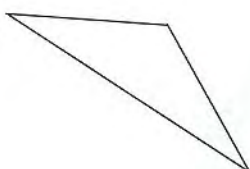
t)



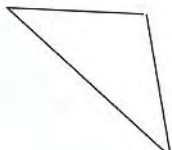
j)



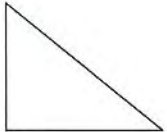
x)



kh)



d)



4. Xulo A, B, C, ama D. shaxanke hoos ku yaal oo aan hu sargo'nayn shaxanka midigta ku yaal



b)



t)



j)



x)

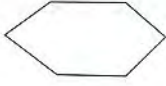


5. Labo shaxan ayaa isku sargo'an. Waa kuwee ?

b)



t)



j)



x)



6. Labo shaxan ayaa isku sargo'an. Waa kuwee ?

b)



t)



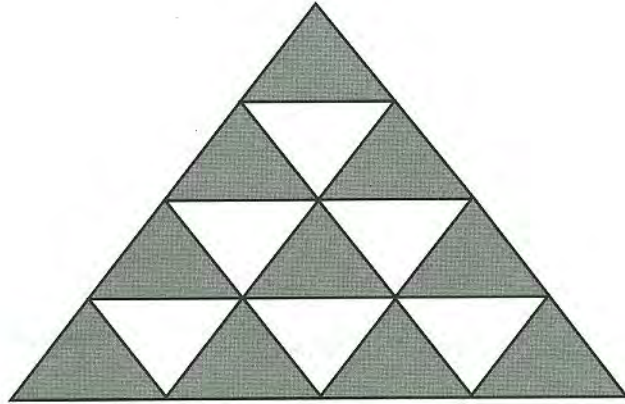
j)



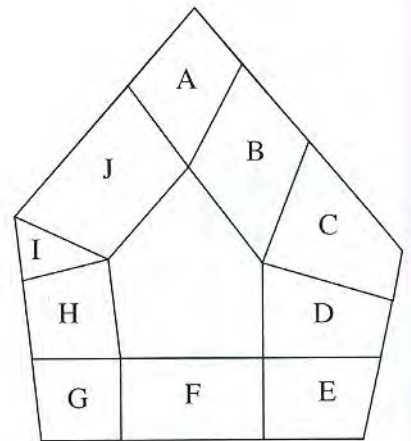
x)



7. Shaxdan, saddexagal kasta oo yar waxa uu leeyahay dhinacyo hal halbeeg ah
 - b) Immisa saddexagal oo isku sargo'an oo leh hal halbeeg ayaa ku yaal shaxda?
 - t) Immisa saddexagal oo isku sargo'an oo leh labo halbeeg ayaa ku yaal shaxda
 - j) Immisa saddexagal oo isku sargo'an oo leh saddex halbeeg ayaa ku yaal shaxda ?

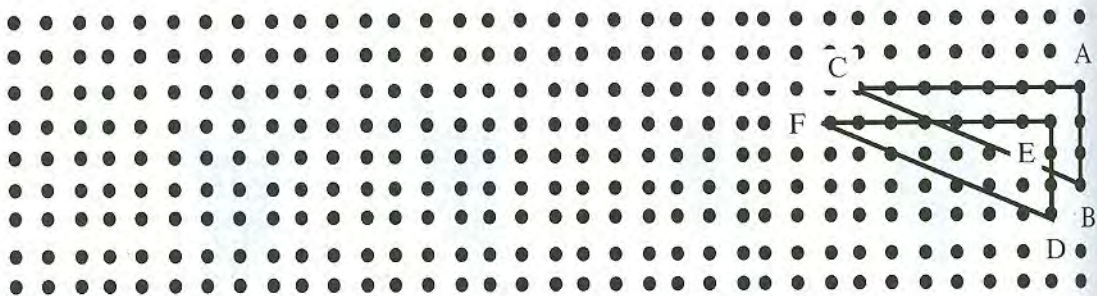


8. Sheeg shaxannada isku sargo'an.



Saddexagallada isku sargo'an

Casharkii hore waxa aad ku soo baratay in labo saddexagal isku sargo'an yihiin haddii ay leeyihiin isku qaab iyo isku baaxad.



Soo qaado waraaq qaab laydi leh oo ka kala jar hal xagalgooye oo u kala jar labo gobol oo saddexagal ah . Is dul saar labada saddexagal si ay isugu dul dhacaan.

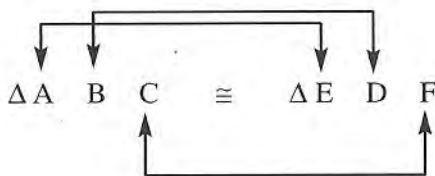
Maxaa aad ka ogaanaysa?

Eeg shaxanka kore. Ogaw in labada saddexagal isku qaab iyo isku baaxad yihiin, taas oo ah

$$\begin{aligned} \angle A &= \angle E & AC &= EF \\ \angle B &= \angle D & AB &= ED \\ \angle C &= \angle F & BC &= DF \end{aligned}$$

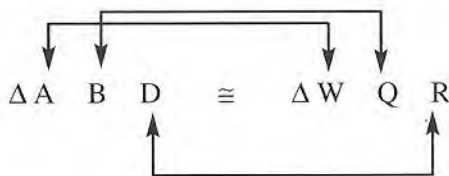
ABD waa ku sargo'an yahay EDF

Waxa aan u qoraynaa geesaha saddexagallada hab oo geesaha isku beegan ay isku rug u buuxiyaan



Haddaba

Haddii ΔABC uu ku sargo'an yahay ΔWQR , Markaa waxa jiraya isku beegnaan ka dhexeeya xaglaha iyo dhinacyada taas oo xaglaha isku beegan isku sargo'an yihiin oo sidaa oo kale dhinacyada isku beegan ay isku sargo'an yihiin. Qoraalka $\Delta ABC \cong \Delta PQR$ waxa ay muujinaysa isku sargo'naanta iyo isku beegnaanta, sida hoos ku muujisan oo kale.



Xaglaha isku beegan waa

Xagal A \cong Xagal W

Xagal B \cong Xagal Q

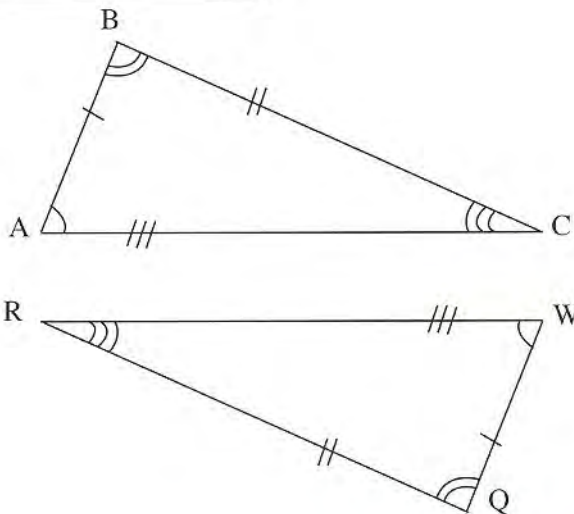
Xagal C \cong Xagal R

Dhinacyada isku beegan waa

AB \cong WQ

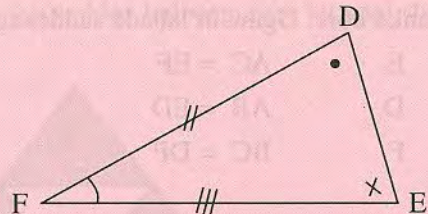
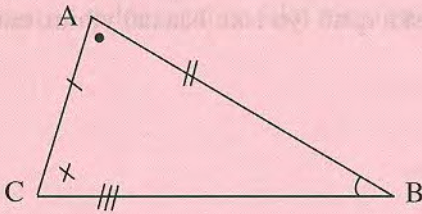
BC \cong QR

CA \cong RW

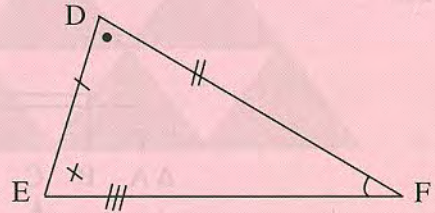
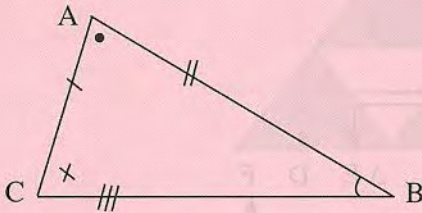


Tusaalooyin:

(i) Magacaw dhinacyada iyo xaglaha isku beegan ee lagu muujiyay calaamadeyn

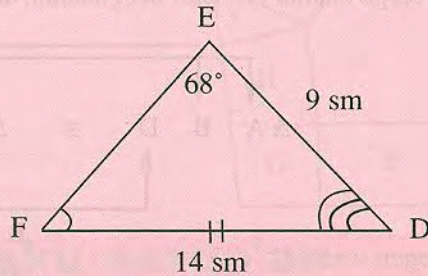
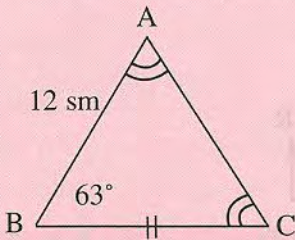


Dib u sawir qaababka saddexagallada.



$$\begin{aligned} \angle A &= \angle D & AB &= DF \\ \angle B &= \angle F & BC &= FE \\ \angle C &= \angle E & CA &= ED \end{aligned}$$

2. Sheeg dhererada dhinacyada iyo xaglaha aan la calaamadayn iyada oo lagu siiyay in $\triangle ABC \cong \triangle EFD$



Iyada oo la adeegsanayo isku beegnaanta

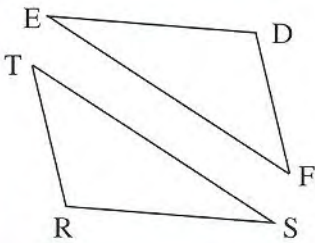
$$A \longleftrightarrow E, \quad B \longleftrightarrow F, \quad \text{iyo} \quad C \longleftrightarrow D$$

$$\begin{aligned} \angle A &= \angle E = 68^\circ & AB &= EF \\ \angle B &= \angle F = 63^\circ & BC &= FD \\ \angle C &= \angle D = 49^\circ & CA &= DE \end{aligned}$$

$\triangle ABC$ oo $\angle A = 68^\circ$, AC 9 sm, iyo BC = 14 sm
 $\triangle EFD$ oo $\angle F = 63^\circ$ iyo EF = 12sm

Layli 6

1. Sin : $\triangle DEF \cong \triangle RST$. Dhammeystir hawraaraha isku sargo'naantan



- b) Xagal DEF \rightarrow
- b) Xagal DE \rightarrow
- b) Xagal EDF \rightarrow
- t) dhinaca FE \rightarrow
- t) dhinaca DE \rightarrow
- t) dhinaca DF \rightarrow

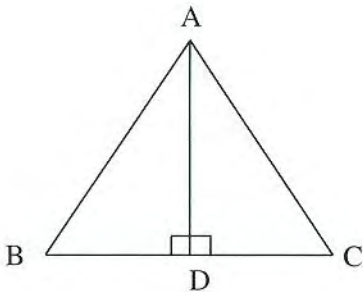
2. Sheeg dhinacyada iyo xaglaha isle'eg labada saddexagal ee isku sargoan

$\triangle WQR \cong \triangle STU$

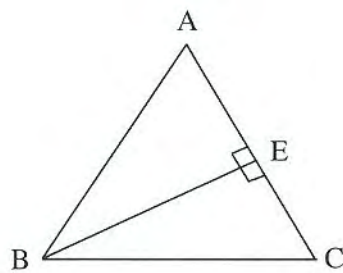
- b) WQ =
- j) SU =
- kh) QR =
- t) $\triangle WQR =$
- x) $\triangle WRQ =$
- d) $\triangle QRW =$

3. Magacaw dhammaan lammaanayaasha dhinacyada iyo xaglaha isle'eg ee shaxankan

b)

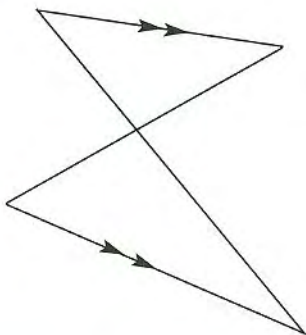


t)

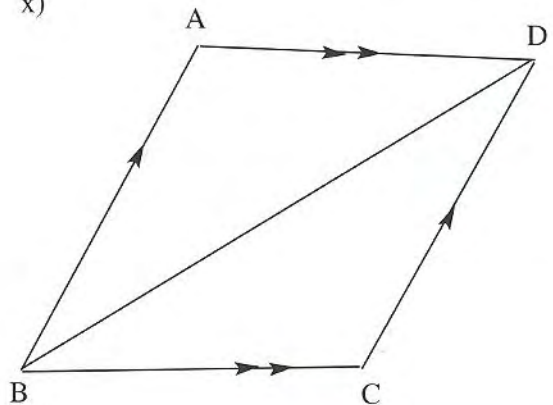


$\triangle ABD \cong \triangle ACD$

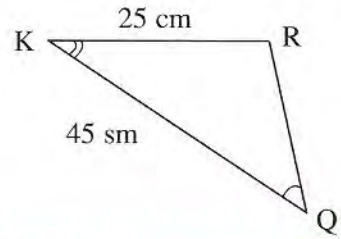
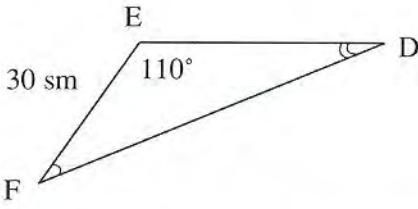
j)



x)

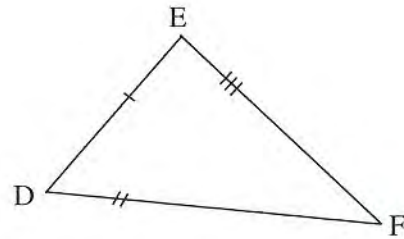
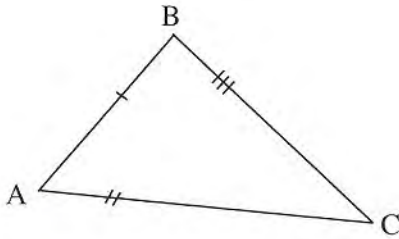


4. Sheeg baaxada xaglaha aan la aqoonin iyo dhererka dhinacyada iyada oo la isa siiyay in $\triangle DEF \cong \triangle KRQ$.



Xaaladaha isku sargo'naanta labo saddexagal

Labo saddexagal waa isku sargo'an yihiin, haddii dhinacyada iyo xaglaha isku beegan kasta ay isle'eg yihiin.



$\triangle ABC \cong \triangle DEF$	$AB \cong DE$	$\angle A \cong \angle D$
	$BC \cong EF$	$\angle B \cong \angle E$
	$AC \cong DF$	$\angle C \cong \angle F$

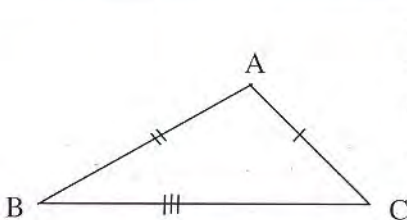
Labada saddexagal waa ay isku sargo'an yihiin. Miyaad u baahan tahay lixda kutirsanayaal ee saddexagal si aad u go'aansato in labo saddexagal ay isku sargo'an yihiin ?

Waxa aad ku soo ogaatay dhisidda saddexagallada in haddii xaalad ka mid ah xaaladahan aad la kulanto markaa waa la dhisi karaa saddexagalka:

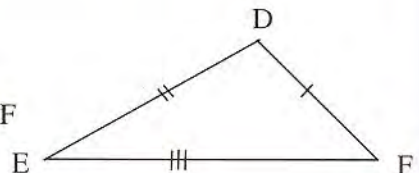
- b) Dhererka saddexda dhinac.
- t) Dhererka labo dhinac iyo cabbirka xagasha u dhexeysa.
- j) Cabbirka labo xaglood iyo dhererka dhinaca u dhexeeya

Xaaladda hore : dhinac-dhinac - dhinac (dh.dh.dh)

Haddii saddexda dhinac ee hal saddexagal sida ay u kala horreeyaan ay le'eg yihiin saddexda dhinac ee saddexagal kale, markaa labada saddexagal waa isku sargo'an yihiin



$AB = DE$
$BC = EF$
$CA = FD$
$\triangle ABC \cong \triangle DEF$



Tusaalooyin:

(i) ABCD waa afargeesle oo $AB = AD, BC = DC$ iyo $\angle ABC = 100^\circ$.

siin: ABCD waa afargeesle $AB = AD, BC = DC$ iyo $\angle ABC = 100^\circ$

Caddee in $\angle ADC = 100^\circ$

Caddeyn:

$\triangle ABC$ iyo $\triangle ADC$

$AB = AD$ (siin)

$BC = DC$ (siin)

AC waa dhinac wadaag

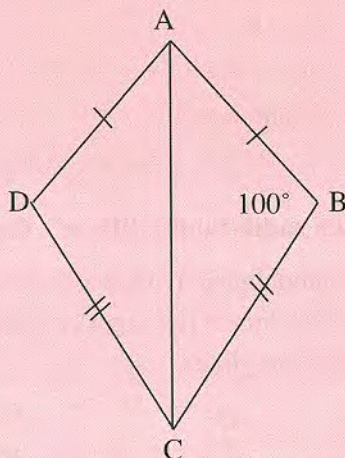
$\triangle ABC \cong \triangle ADC$ (dh.dh.dh)

Labada saddexagal waa isku sargo'an yihiin.

Haddaba xaglaha isku beegan waa isle'eg yihiin

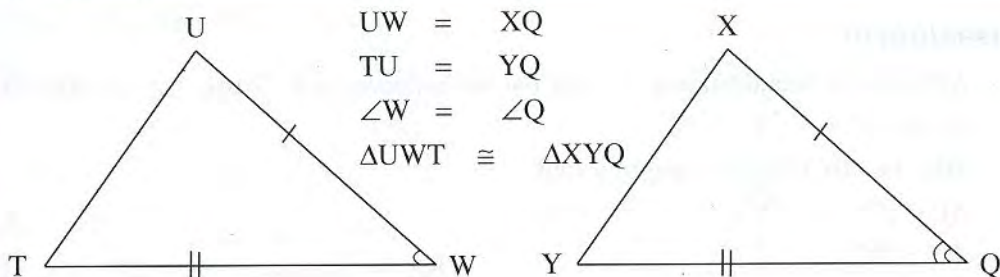
$\therefore \angle B = \angle D$

$\therefore \angle ADC = \angle ABC = 100^\circ$



Xaaladda labaad : xagal, xagal, dhinac (x x dh)

Haddii labo xaglood iyo dhinaca u dhexeeya ee hal saddexagal sida ay u kala horeeyan ay le'eg yihiin labo xaglood iyo dhinacada u dhexeeya ee saddexagal kale markaa labada saddexagal waa isku sargo'an yihiin.



Tusaalooyin:

$\triangle ABM = \triangle CDM,$

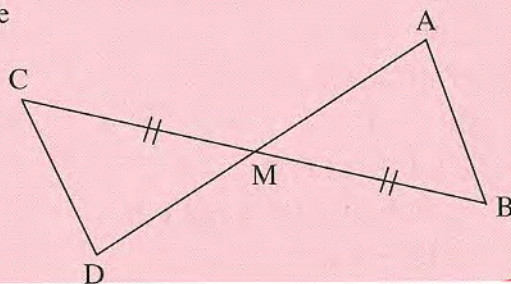
Caddee in shaxanka ABCD yahay barbaroole

Siin : $\angle ABM = \angle CDM;$ AD, CB waxa ay iska goynayaan M

$MB = MC$

$\triangle ABM = \triangle CDM$

Caddee in: ABCD yahay barbaroole

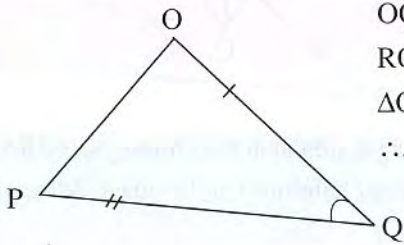


caddeyn:

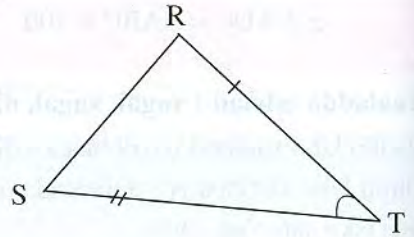
ΔAMB iyo ΔCMD
 $MB = CM$ (siin)
 $\Delta BMA = \Delta DMC$ (xaglo isfoodsar ah)
 $\Delta MBA = \Delta DCM$
 $\therefore \Delta AMB \cong \Delta CMD$ (xdhx)
 $\therefore AB = CD$
 $\therefore \angle MAB = \angle CDM$
 markaa $AB \parallel CD$
 $\therefore ABCD$ waa barbaroole

Xaalada saddexaad : dhinac - xagal - dhinac (dh x dh)

Haddii labo dhinac iyo xagasha u dhexeeya ee hal saddexagal sida ay u kala horeeyan ay le'eg yihiin labo dhinac iyo xagasha u dhexeeya ee saddexagal kale markaa labada saddexagal waa isku sargo'an yihiin.



$OQ = RT$
 $RQ = ST$
 $\Delta OQR = \Delta RTS$
 $\therefore \Delta ORQ \cong \Delta RST$



Tusaalooyin:

$ABCD$ waa labajibbaarane. E waa bar bartameedka AB . F waa bar bartameedka CD .
 Cadee in $AF = CE$

Siin: in $ABCD$ yahay labajibbaarane

$AE = BE$

$DF = FC$

Caddee in: $AF = CE$

Caddeyn :

$AB = DC$ (astaamaha labajibbaarane)

$\therefore BE = DF$

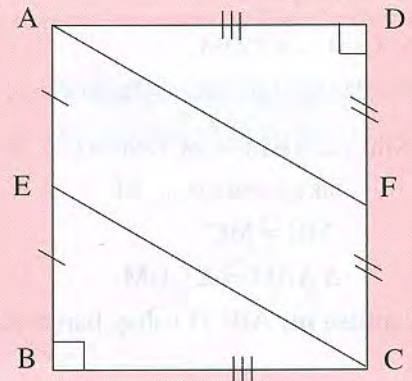
In ΔEBC iyo ΔFDA

$BE = DF$

$\angle EBC = \angle FDA$

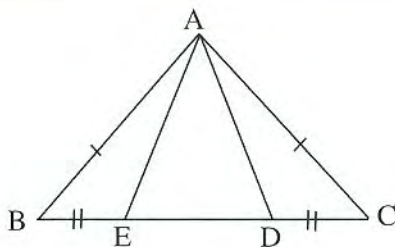
$\therefore \Delta EBC \cong \Delta FDA$ (dh x dh)

$\therefore EC = FA$

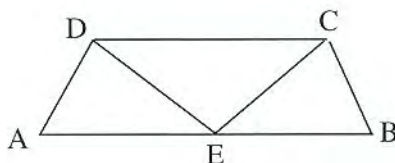


Layli 7

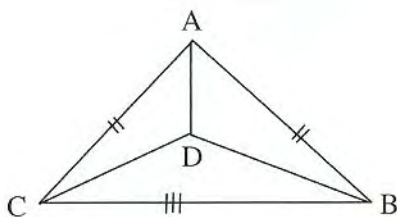
1. $AB = AD$ iyo $BC = CD$.
 Caddee in AC kala bareyso $\triangle BAD$



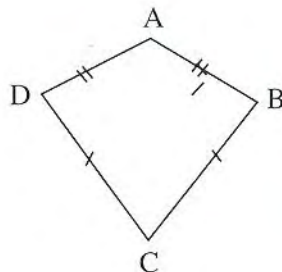
2. $AD = BC$, $BE = AE$
 oo $\angle DAE = \angle CBE$.
 Caddee in $DE = \angle ACE$.



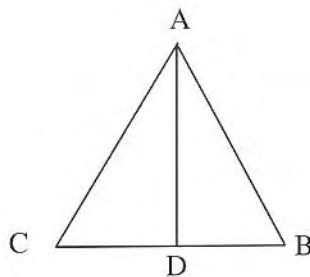
3. $AB = AC$,
 BD waxa ay kala bareyso xagasha B oo CD
 waxa ay kala bareyso xagasha C
 Caddee in AD ay kala bareyso xagasha BAC



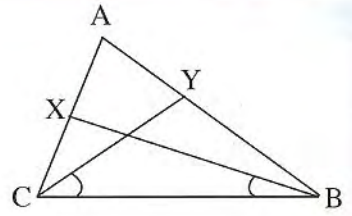
4. $AB = AD$, $BC = CD$.
 Caddee in xagasha $ABC =$ xagasha
 ADC



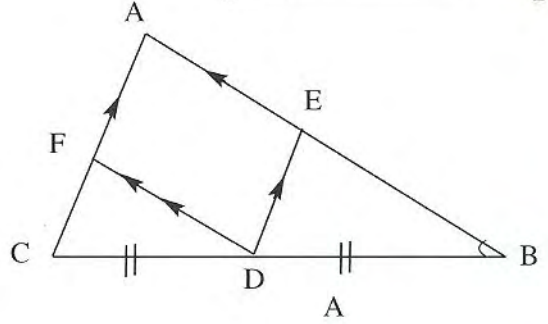
- 5 $\triangle ABC$
 $\angle B = \angle C$, AD waa kala baraha $\triangle CAB$
 Caddee in $AB = AC$



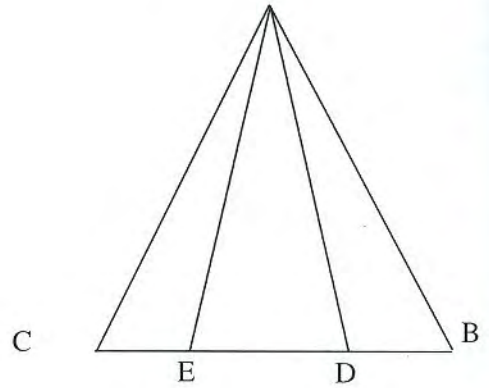
6. $AB = AC$
 $\triangle BCY = \triangle XBC$
 Caddee in $AY = AX$



7. ABC waa saddexagal
 D waa bar bartameedka BC,
 $DE \parallel CA$ oo $DF \parallel BA$
 Caddee in E ay tahay
 bar bartameedka AB,
 F ay tahay barbartameedka AC



8. $\angle B = \angle C$ oo $AC = AB$
 $\triangle BAD = \triangle CAE$
 Caddee in $BD = CE$

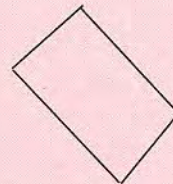
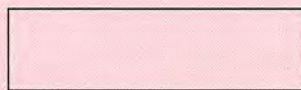
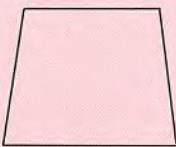
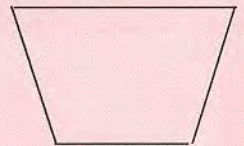
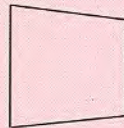
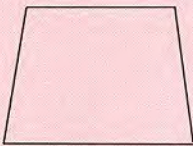


Shaxanno isu eg

Labo shaxan waa isu eg yihiin haddii ay yihiin isku qaab (waxa dhici kara in ay isku baaxad yihiin ama aysan isku baaxad ahayn).Shaxanada isu eg waxa ay leeyihiin xaglo isku sargo'an.

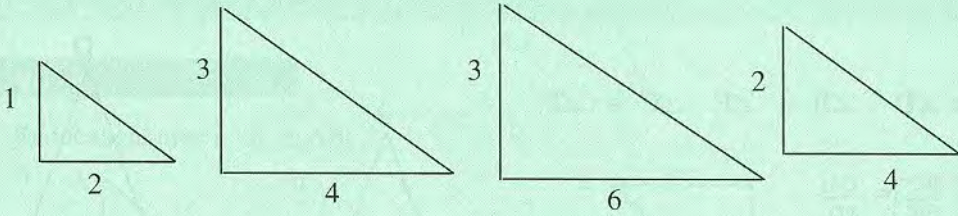
Tusaalooyin:

- (i) Labo ka mid ah shaxanadan ayaa isu eg waa labadee ?



Qaybaha isku aadan ee shaxannada isu eg waxa la yiraahdaa qaybaha isku beegan
 Qaybaha isku beegan ee shaxannada isu eg waa isla saamigalsan yihiin.

(ii) Saddexagalkee u eg saddexagalka midigta xiga?



$$\frac{2}{1} = \frac{4}{2}$$

$$2 = 2$$

Waa isu eg yihiin

$$\frac{2}{3} = \frac{4}{4}$$

$$\frac{2}{3} \neq 1$$

isuma eka

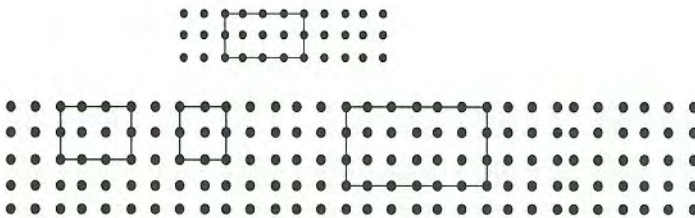
$$\frac{2}{3} = \frac{4}{6}$$

$$\frac{2}{3} = \frac{2}{3}$$

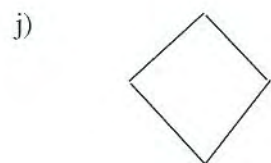
Waa isu eg yihiin

Layli 1

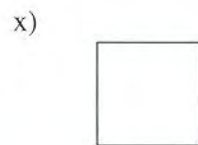
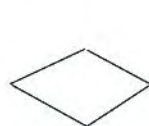
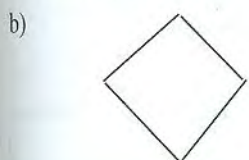
1. Laydige u eg laydiga midigta ku yaal?



2. Labo shaxan ayaa isu eg. Waa kuwee?



3. Labo shaxan ayaa isu eg. Waa kuwee?

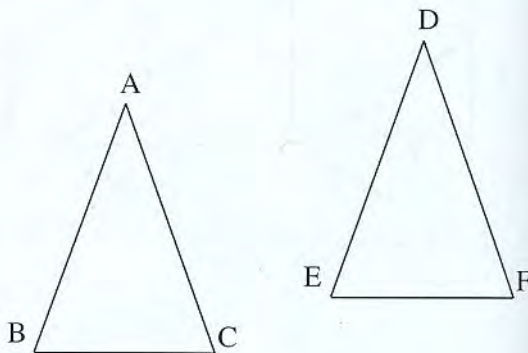


Saddexagallo isu eg:

Labo saddexagal waa isueg yihiin haddii xaglaha isku beegan isle'eg yihiin oo dhererrada dhinacyada isku beegan ay saamigal yihiin. Summada ~ waxa loo akhriya "waa u eg yahay" Haddii $\triangle ABC \sim \triangle DEF$, Markaa hawraantan waa run:

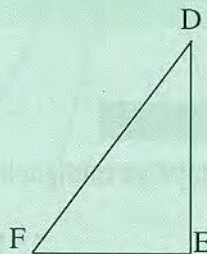
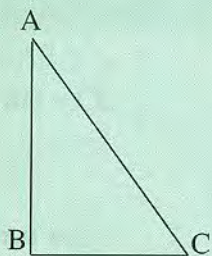
$$\angle A \cong \angle D, \angle B \cong \angle E, \angle C \cong \angle F$$

$$\frac{AB}{DE} = \frac{BC}{EF} = \frac{CA}{FD}$$



Tusaalooyin:

(i) $\triangle ABC$ iyo $\triangle DEF$ waa saddexagale qumman, $\triangle ABC$ ma u eg yahay $\triangle DEF$?



$\triangle ABC$ waa saddexagale qumman

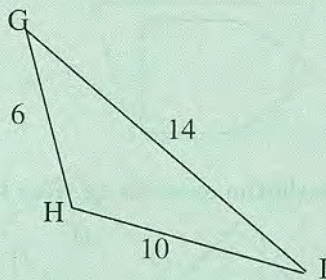
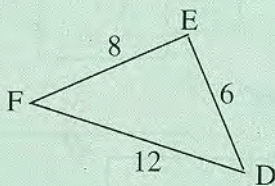
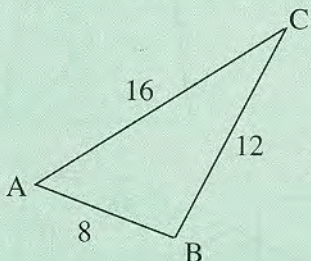
\therefore Cabbirka xaglihiisa waa $45^\circ, 45^\circ$, iyo 90° .

Sidaa oo kale ayaa u go'aansan kartaa $\triangle DEF$.

$$\angle B \cong \angle E, \angle C \cong \angle F, \text{ and } \angle A \cong \angle D$$

$$\therefore \triangle ABC \sim \triangle DEF$$

(ii) Saddexagalladee isu eg?



Si aad u go'aansato midkee, haddii ay jiraan, saddexagalo isueg, waxa aad u baahan tahay in aad eegto saamiyada dhinacyada isku beegan.

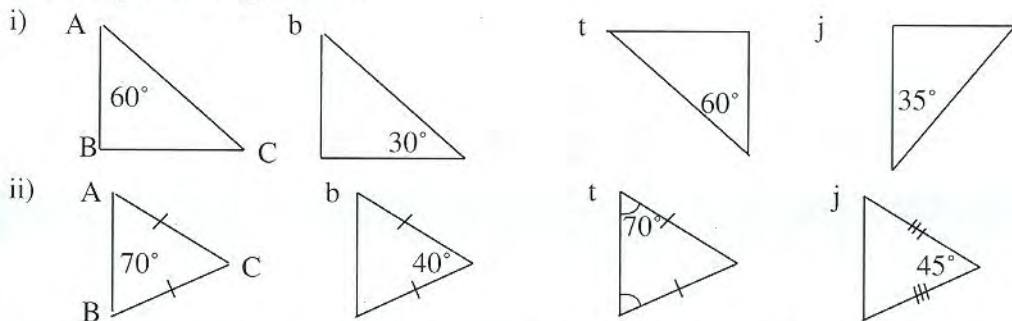
Saamiyada dhererada dhinacyada ee ΔABC iyo ΔDEF

$$\frac{AB}{DE} = \frac{8}{6} = \frac{4}{3}, \frac{CA}{FD} = \frac{16}{12} = \frac{4}{3}, \frac{BC}{EF} = \frac{12}{9} = \frac{4}{3},$$

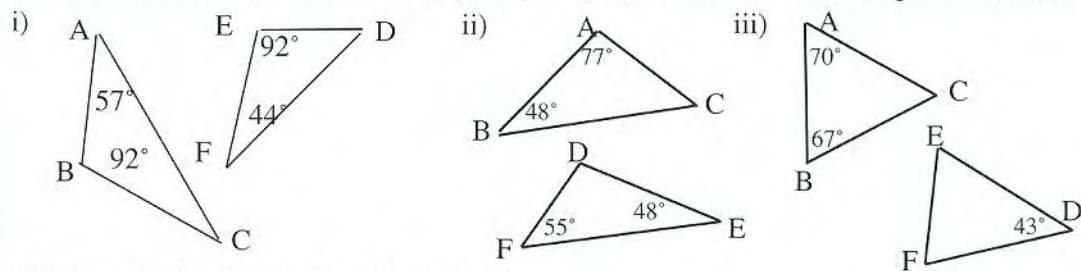
ΔABC iyo ΔDEF waa isu eg yihiin waayo Saamiyada dhererada dhinacyada ee ΔABC iyo ΔDEF waa isle'eg yihiin

Layli 8

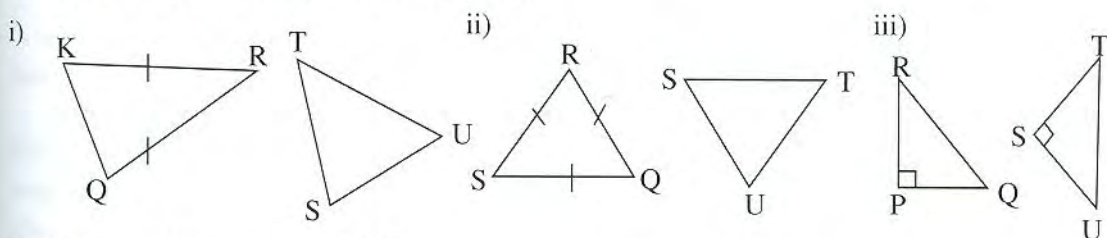
1. Saddexagaladee u eg ΔABC ?



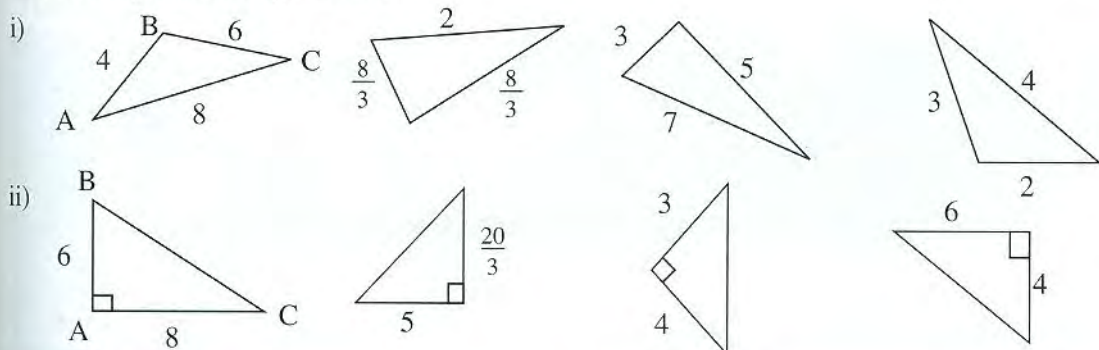
2. Go'aanso in ΔABC iyo ΔDEF isueg yihiin, in ay isu ekayn ama in aan la goaansan karin



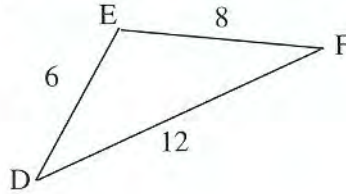
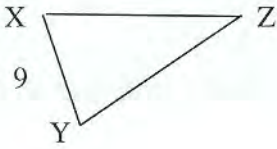
3. $\Delta KQR \sim \Delta STU$. Raadi $\angle S$, $\angle T$ iyo $\angle U$



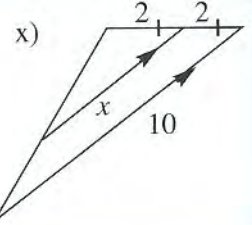
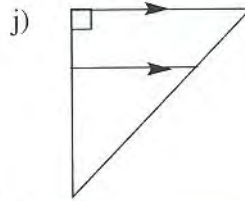
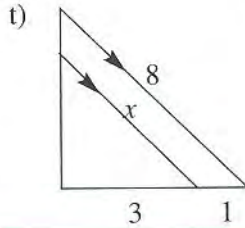
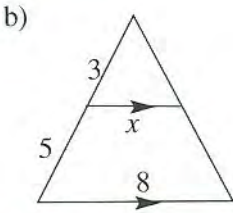
4. Saddexagalladee u eg ΔABC ?



5. $\triangle DEF \approx \triangle XYZ$. Raadi XZ iyo YZ.



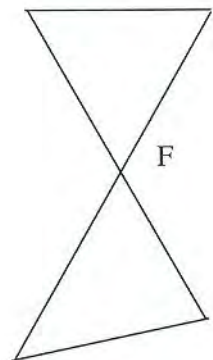
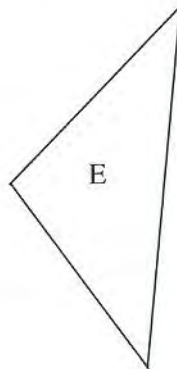
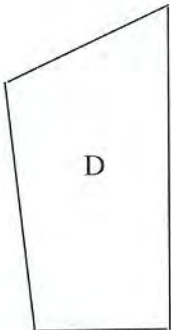
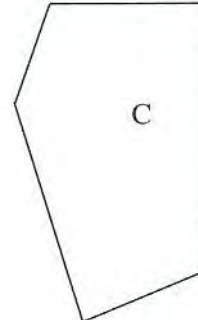
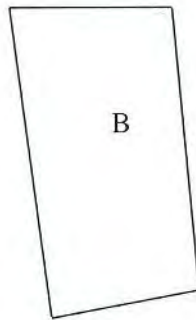
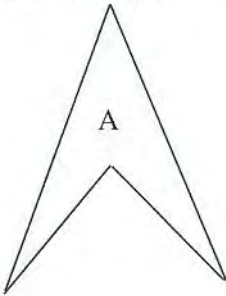
6. U furfur x



Geesoole

Erayga geesoole micnaahisu waa dhinacyo badane.

Geesoole waa shaxan sallax ee ka samaysmay saddex xarriijin ama wax ka badan oo la yiraahdo, dhinacyo.

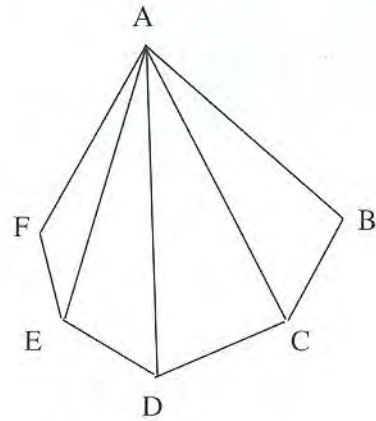
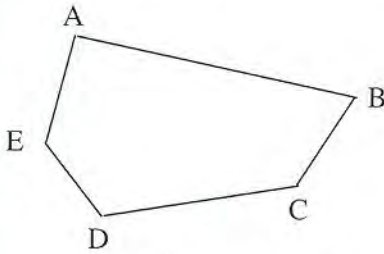


A,B,C,D iyo E waa geesooleyaal shaxanka F waxa uu leeyahay 2 geesoole.

Geesoolayaasha waxa lagu kala soocaa tirada dhinacyada ay ka kooban yihiin, sida lagu muujiyay tusaha . Maxa yeelay geesoolaha ugu yaraan waa in uu ka koobnaadaa saddex dhinac, ka ugu fudud waa saddexagal.

Dhinacyada	Nooca geesoolaha
3	Saddexagal
4	Afar geesle
5	Shangeesle
6	Lixgeesle
7	Toddobo geesle
8	Siddeed geesle
9	Sagaalgeesle
10	Taban geesle
12	Toban iyo labageesle
n	n-geesle

Geesoolayaasha waxa loo sheegi karaa si la mid ah qaababka kale - Iyada oo la magacaabayo geesaha.



Saddexda xagalgooye ee lixgeeslaha waa AC, AD iyo AE.

Geesaha geesoolahan waa A, B, C, D iyo E, F.

Xagalgooyaha geesoole waa xarriijinta isku xirta labo geesood oo aan isku xigin. Xarriijin kasta ee isku xirta laba gees ee geesoolaha waa dhinac ama xagalgooyaha geesoolaha.

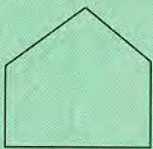
Geesoole waa simane haddii dhinacyadiisa oo idil isle'eg yihiin. Waa xaglo isleeke haddii xaglo gudeedka isle'eg yihiin.

Geesoole waa geesoole qaabsan haddii uu siman yahay oo xaglihiisa isle'eg yihiin.

Tusaalooyin:

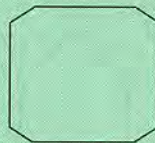
Magacaw geesoole kasta.

b)



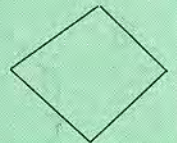
Geesoolahan waxa uu leeyahay shan dhinac. Waana shangeesle

t)



Geesoolaha waxa uu leeyahay siddeed dhinac. Waana siddeedgeesoole

j)

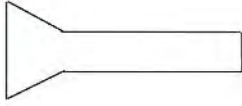


Geesoolaha waxa uu leeyahay afar dhinac. Waana afargeesle

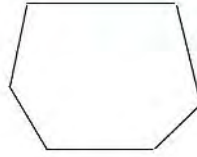
Layli 10

1. Sheeg in geesoole kasta uu yahay tuurre yahay iyo in kale.

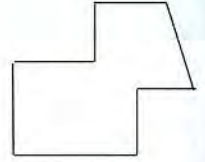
b)



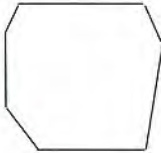
t)



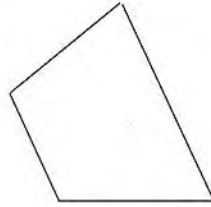
j)



x)

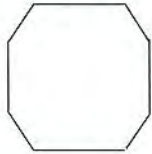


kh)



2. Waa maxay magaca geesoole kasta?

b)



t)



j)



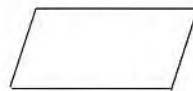
x)



kh)



d)



r)



s)

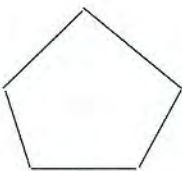


3. Go'aanso in shaxanku geesoole yahay iyo in kale.

b) Haddii uusan ahayn , sharax sababta .

t) Haddii uu yahay, ma yahay tuurre?

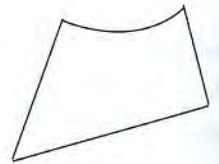
b)



t)

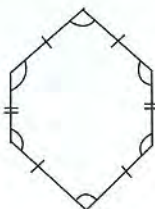


j)



4. Geesoolayaashan kuwee ayaa siman ?kuwee xaglo isleeke ah ? kuwee qaabsan kuwee lixgeesoole ah ?

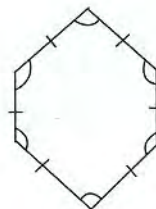
b)



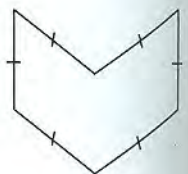
t)



j)

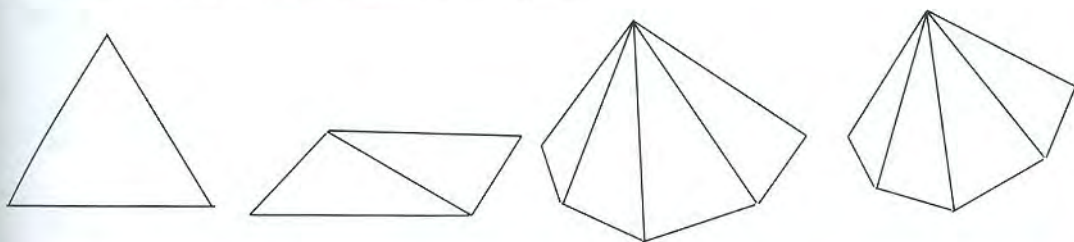


x)



Xaglaha geesoolaha

Wadarta xaglaha saddexagal waa 180° . Astaanta ayaa loo adeegsan karaa si lagu soo saaro wadarta xagalaha gudeedka ee geesoole tuurre ah.



Geesoole	Tirada dhinacyada (n)	Tirada saddexagallada n - 2	Wadarta cabbiraadaha xaglo gudeedka
Saddexagal	3	1	$1 \times 180^\circ = 180^\circ$
Afargeesle	4	2	$2 \times 180^\circ = 360^\circ$
Shangeesle	5	3	$3 \times 180^\circ = 540^\circ$
Lixgeesle	6	4	$4 \times 180^\circ = 720^\circ$
toddobogeesle	7	5	$5 \times 180^\circ = 900^\circ$
siddeedgeesle	8	6	$6 \times 180^\circ = 1080^\circ$
Sagaalgeesle	9	7	$7 \times 180^\circ = 1260^\circ$

Wadarta xaglo gudeedka ee n-geesle tuurre ah

$$(n - 2)(180^\circ) \text{ ama } (n-2) \times 2 \text{ xagalo qumman}$$

Maadaama dhammaan xaglaha geesoole qaabsan ay isku sargo'an yihiin. Cabbirka xagal kasta waa:

$$\frac{1}{n} (n - 2)(180^\circ)$$

Layli 10

Xisaabi baaxadda xagal gudeed kasta ee shangeesoole qaabsan. shangeesoole waxa uu leeyahay 5 dhinac sida awgeed $n = 5$

$$\begin{aligned} \text{xaglaha cabbirkooda} &= \frac{1}{n} (n - 2)(180^\circ) \\ &= \frac{1}{5} (5 - 2)(180^\circ) \\ &= \frac{1}{5} (3)(180^\circ) \\ &= 108^\circ \end{aligned}$$

shaxanka u furfur x

Adeegso fikradda xagal gudeed geesoole

Waxa aad u furfuri kartaa sida soo socota:

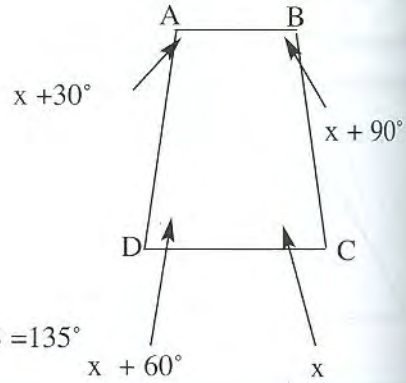
$$x + (x + 30^\circ) + (x + 60^\circ) + (x + 90^\circ) = 360^\circ$$

$$4x + 180^\circ = 360^\circ$$

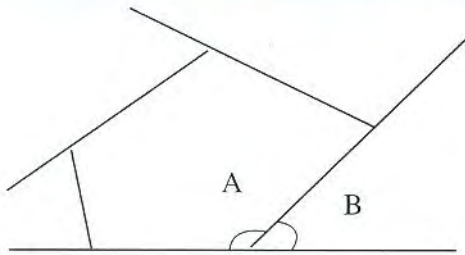
$$4x = 180^\circ$$

$$x = 45^\circ$$

Sida awgeed $\angle C = 45^\circ$, $\angle A = 75^\circ$, $\angle D = 105^\circ$, $\angle B = 135^\circ$



Xagal dibadeedka geesoole



A waa xagal gudeedka geesoolaha

B waa xagal dibadeedka geesoolaha

$$\therefore A + B = 180^\circ$$

$$B = 180^\circ - A$$

$$= 180^\circ - \frac{(n-2)(180)}{n}$$

$$180^\circ \left[1 - \frac{n-2}{n} \right]$$

$$180^\circ \left(\frac{n-n+2}{n} \right)$$

$$180^\circ \times \frac{2}{n}$$

$$= \frac{360^\circ}{n}$$

Geesoolaha leh n dhinac wadarta dhammaan xagal dibadeedka waa $\frac{360^\circ}{n}$

Tusaale:

(i) Waa maxay baaxadda xagal dibadeedka geesoole qaabsan oo leh 4 dhinac?

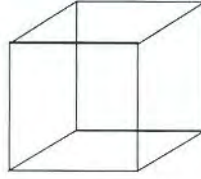
$$\begin{aligned} \text{Baaxadda xagal dibadeedka} &= \frac{360^\circ}{n} \\ &= \frac{360^\circ}{4} \\ &= 90^\circ \end{aligned}$$

Layli 11

- Xisaabi xagal gudeedka geesoolayaasha qaabsan ee leh dhinacyada soo socda
 b) 3 t) 4 j) 6 x) 8
- Xisaabi wadarta xagalo gudeedka ee:
 b) shangeesle t) sagaalgeesle n j) tobangeesle x) Lixgeesle
- Sheeg geesoolaha leh wadarta xagal gudeedka ee :
 b) 3600 t) 1800 j) 7200
- Xagal dibadeed kasta ee geesoole qaabsan waa 450. Waa maxay magaca geesoolaha?
- Xisaabi baaxadda xagal dibadeed kasta ee geesoolaha qaabsan ee leh :
 b) 12 dhinac t) 16 dhinacs

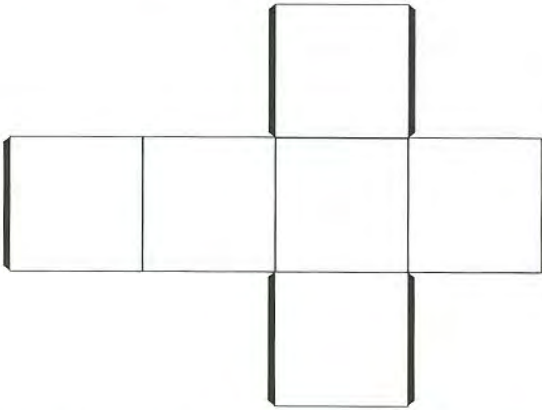
11 SAMAYNTA HEEMAALIDDA

saddexjibbaaranayaasha



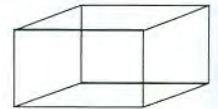
Saddexjibbaarane waxa uu leeyahay 12 geftin oo isle'eg, 6 weji oo labajibbaarane ah iyo 8 gees.

Kan waa shabaq Saddexjibbaarane xiran. La raac oo soo jar. Isku dheji laalaabyada. Tiri tirada wejiyada, geftannada iyo geesaha.

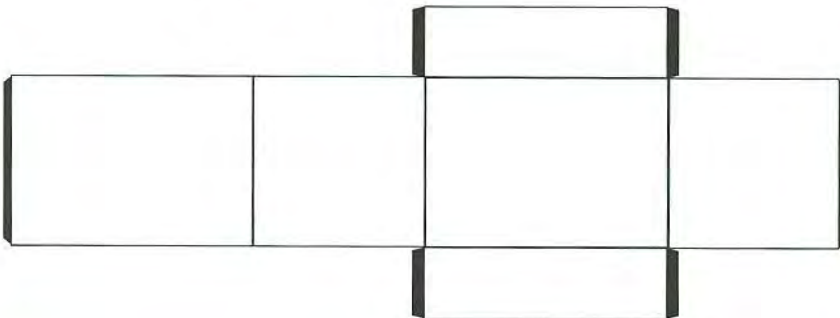


Sedjibekekaal

Sedjibeke waxa uu leeyahay 12 geftin , 4 weji oo laydi ah iyo 8 gees.

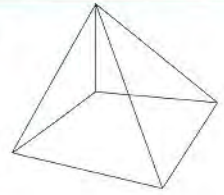


Kan waa shabaq Sedjibeke xiran. La raac oo soo jar. Isku dheji laalaabyada. Tiri tirada wejiyada, geftinnada iyo geesaha.

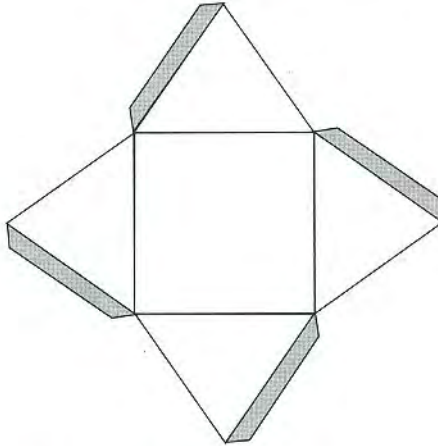


Haram sal labajibbaarane leh

Haram sal labajibbaarane leh waxa uu leeyahay 8 gefin, 5 weji (hal uu labajibbaarane yahay oo afar kalane ay saddexagal yihiin) iyo 5 gees.

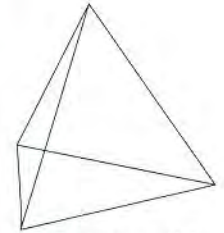


b) Kan waa shabaq haram sal labajibbaarane leh. La raac oo soo jar. Isku dhegi laalaadayaasha. Tiri tirada wejiyada, gefinnada iyo geesaha.



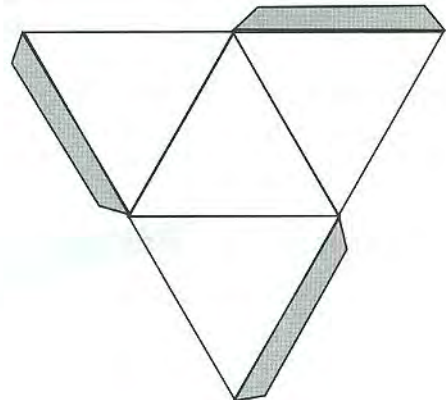
b)Sawir shabaq u eg oo leh dhinacyo 5 sm ah

Adke afar salxaale ah



Adke afar salxaale ah waa Haram sal saddexagal leh waxa uu leeyahay 6 gefin, 4 weji iyo 4 gees.

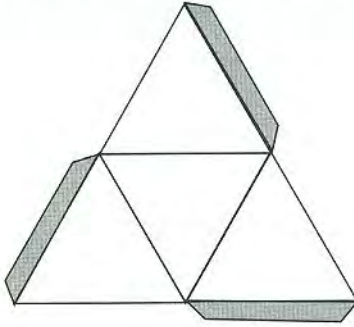
Kan waa shabaq Adke afar salxaale ah. La raac oo soo jar. Isku dhegi laalaabyada. Tiri tirada wejiyada, gefinnada iyo geesaha.



Ku celceli kan kore oo leh saddexagalo labaale ah oo dhereradiisu yihiin, 6sm iyo 7 sm sida ay u kala horreeyaan.

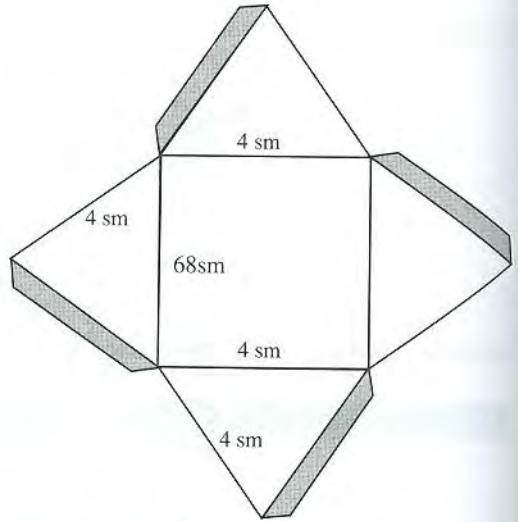
Layli 1

1. La raac ama si sax ah ugu sawir shabaqan waraaq adag ama bidaaqad khafiif ah.

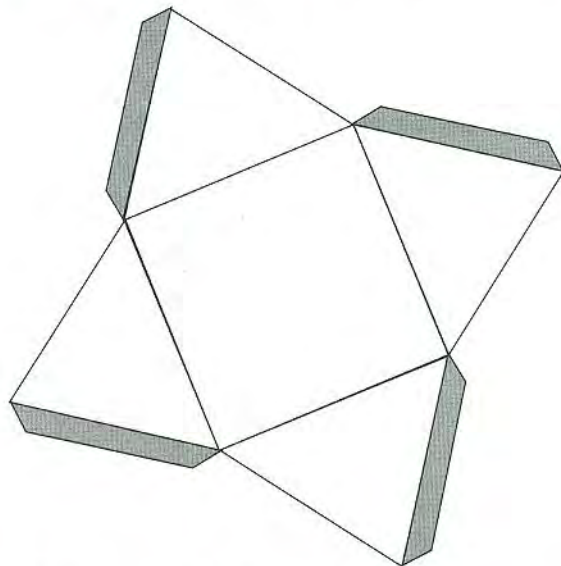


- b) Ka jar xariiqaha adag. Ka laab xariiqaha dhibcaysan .
- t) Iskudheji laaladayaasha wejiyadooda isku dhaw si aad u sameyso adke.
- j) Waa maxay adkaha aad sameysay?

2. Sawir shabaqa haram sal labajibbaarane, ka dibna ka jar waraaq adag si aad u sameyso haram. Adeegso cibbiraadaha jaanyuska



3. La raac ama si sax ah ugu sawir shabaqan waraaq adag ama bidaaqad khafiif ah.

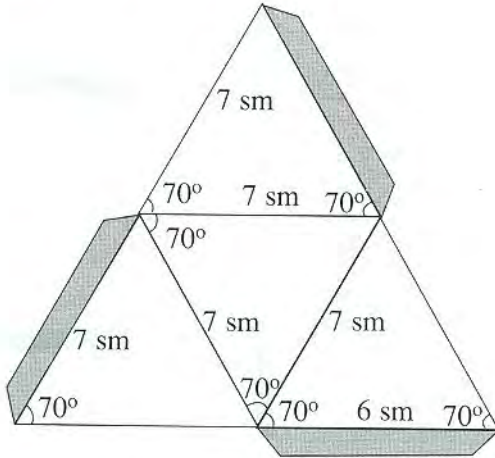


b) ka jar xariiqaha adag. Ka laab xariiqaha dhibcaysan.

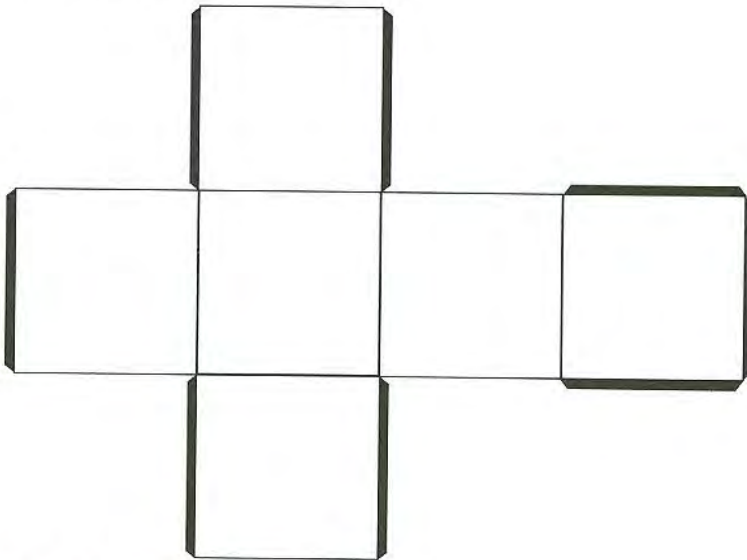
t) Isku dheji laalaabyada wejiyadooda isku dhaw si aad u sameyso adke.

j) Waa maxay adkaha aad sameysay ?

4. Adeegso mastarad iyo xagalbeege si aad u dhisto shabaqan hoose. Cabbiraadaha dhinacyada iyo xaglaha waxa la isku siiyay shabaqa.



5. La raac ama si sax ah ugu sawir shabaqan waraaq adag ama bidaaqad khafiif ah. Ka jar xariiqaha adag. Ka laab xariiqaha dhibcaysan. Isku dheji laalaabyada wejiyadooda isku dhaw si aad u sameyso adke.

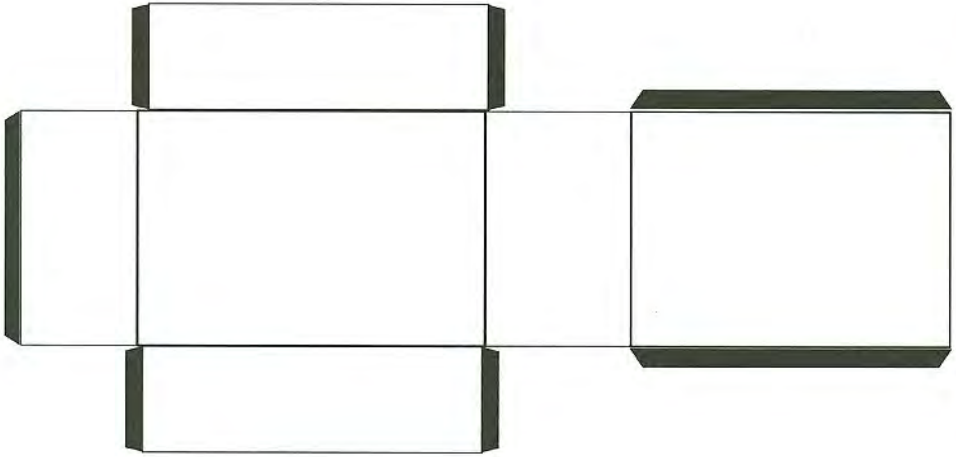


b) Waa maxay adkaha aad sameysay ?

t) Tiri tirada:

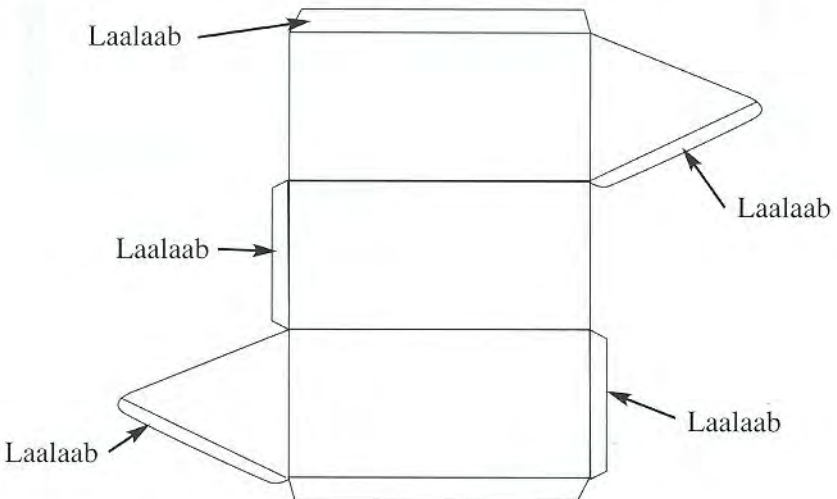
- i) Wejiyada
- ii) Geftinnada
- iii) geesaha

6. La raac ama si sax ah ugu sawir shabaqan waraaq adag ama bidaaqad khafiif ah. Ka jar xariiqaha adag. Ka laab xariiqaha dhibcaysan. Isku dheji laalaabyada wejiyadooda isku dhaw si aad u sameyso adke.

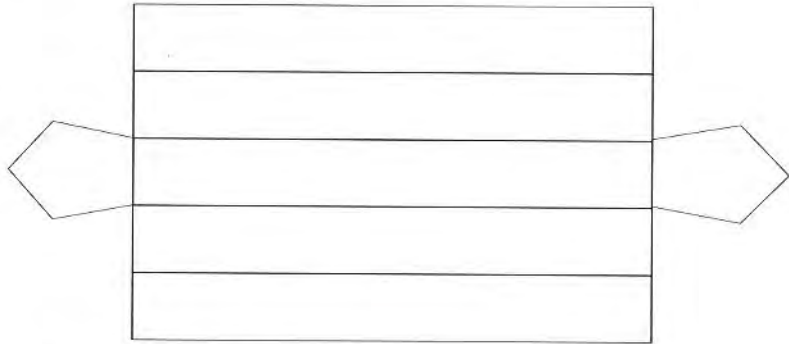


- b) Waa maxay adkaha aad sameysay ?
 t) Tiri tirada:
 (i) Wejiyada
 (ii) Gefinnada
 (iii) geesaha

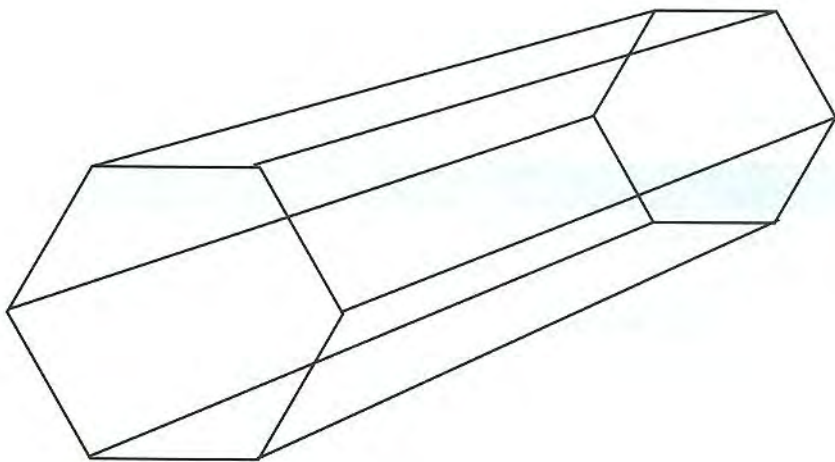
7. Cabbir oo ku dhis shabaqa waraaq adag ka dibna soo jar si aad u sameyso



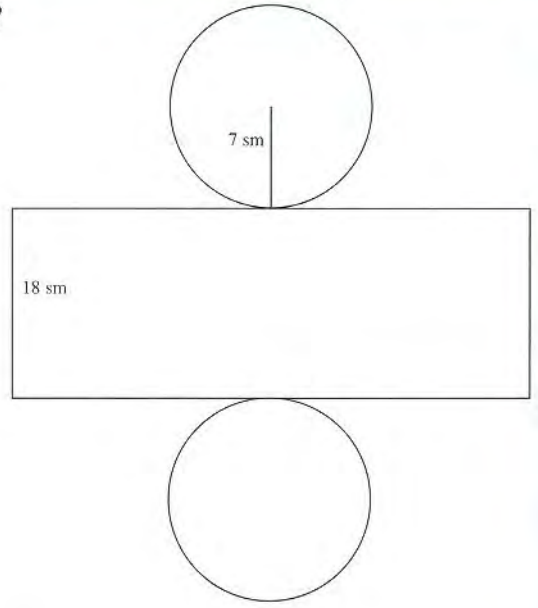
- b) waa maxay adkaha aad ka sameysay shabaqan ?
 - b) Waa maxay adkaha aad sameysay ?
 - t) Tiri tirada:
 - (i) Wejyada
 - (ii) Geftinnada
8. U sawir si sax ah shabaqa leh 2.8 sm iyo 4 sm iyo 6 sm ee sedjibeke. Jar shabaqa oo adeegso si aad u sameyso sedjibeke.
9. Adke ayaa leh 12 geftin oo isle'eg, 6 weji iyo 8 gees, maxa uu yahay?
10. Adke ayaa leh 6 geftin, 4 weji iyo 4 gees. Maxa uu yahay?
11. Sifee Birisimka laga sameyn karo shabaqyadan.
Immisa wejiyo , geftinno, geeso ayaa uu leeyahag?



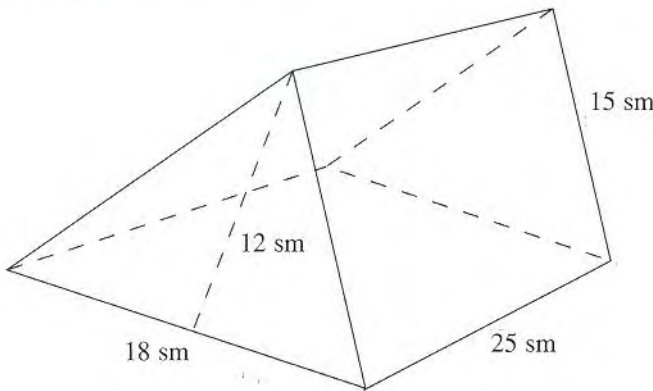
12. Sawir jaantus si aad u muujiso shabaqa barisimkan.



13. Birisimkee laga sameyn karaa shabaqan?



14. Sawir shabaqa Birisimkan.



15. Sawir shabaqa dhuluulubo xiran oo leh gacan 8sm iyo joog 20sm.

16. Min guuri oo dhammeystir tusaha.

Adke	Wejiyo	Giftinno	Geesas
Saddexjibbaarane			
Sedjibeke			
Ahraam labajibbaarane ah			
Adke afar salxaale ah			
Birisim saddexagal ah			
Birisim lixgeesle ah			
Dhuluulubo			

12 CELCELIYADA

Tirosin

Tusaale:

Si loo helo tirosinka culaysyada walxo ama kooxo waxa la isugeeyaa dhammaan culaysyada walxaha ama kooxaha oo dhan ka dibna wadarta ayaa waxa loo qaybiyaa tirada walxaha ama kooxda. Tusaale ahaan raadi tirosinka culayska toddoba qof oo culayskoodu kala yahay: 31 , 31.3 , 42.4 , 30.2 , 43.4 , 29.1 , 31.2.

Furfuris:

$$\begin{aligned}
 \text{Tirosinka culayska} &= \frac{\text{Wadarta culaysyada}}{\text{Tirada ardayda}} \\
 &= \frac{31 + 31.3 + 42.4 + 30.2 + 43.4 + 29.1 + 31.2}{7} \\
 &= \frac{238.6}{7} \\
 &= 34.09 \quad (2\text{rt})
 \end{aligned}$$

Badidhace

Koox tirooyin ama cabbiraado, tirada ama cabbirka soo noqnoqda inta ugu badan ayaa la yiraahdaa badidhace. Xogahaas oo kale waxa laga yaabaa in ay leeyihiin wax ka badan hal badidhace. Tusaale ahaan tirooyinka 4, 6, 4, 6, 5, 6, 1, 4, 14, 1. Tirada 4 waxa ay soo noqnoqotay 3 jeer, 6 waxa ay soo noqnoqotay 3 jeer, 5 waxa ay soo noqnoqotay hal jeer, 1 waxa ay soo noqnoqotay 2 jeer, 14 waxa ay soo noqnoqotay hal jeer. 4 iyo 6 waxa ay soo noqnoqdeen 3 jeer midkiiba. Sidaa awgeed badidhacyadu waa 4 iyo 6.

Dhexfur

Marka koox tirooyin ama cabbiraado loo habeeyo horsanaan min kan ugu yar ilaa kan ugu weyn ama lidka , qiimaha dhexda ah ayaa la yiraahdaa dhexfur.

Xogta : 11, 15, 8. oo loo habeeyay min kan ugu yar ilaa kan ugu weyn waa 8, 11, 15.

Qiimaha dhexda ku jira waa 11. Haddaba dhexfurka waa 11.

Marka 12, 11, 6, 13 loo habeeyo min kan ugu yar ilaa kan ugu weyn horsanaanta waa

6, 11, 12, 13.

Xaaladdan suuragal ma aha in isla markiiba la soo saaro qiimaha dhexda ku jira . Si loo soo saaro, isugee labada tiro ee dhexda ka dibna wadartooda u qaybi 2.

$$\text{t.a } \frac{11+12}{2} = \frac{23}{2} = 11.5 \quad \text{dhexfurka 6, 11, 12 iyo 13 waa 11.5}$$

Marka 3, 5, 3, 1, 4, 2, 6, 4, 3 loo habeeyo min kan ugu yar ilaa kan ugu weyn horsanaanta waa 1, 2, 3, 3, 3, 4, 4, 5, 6. tirada dhexda ku jirta waa 3, sida awgeed dhexfurka waa 3.

Tusaalooyin:

- (i) Waxa soo socda waa akhrinta xarunta saadaasha hawada ay ku sameeyeen Xaddiga roob ee da'ay hal toddobaad:

23 mm, 27 mm, 21 mm, 26 mm, 28 mm, 16 mm, 24mm

maxa uu ahaa dhexfurka xaddiyada roobka d'ay toddobaadkaas?

Marka loo habeeyo cabbiraadaha min kan ugu yar ilaa kan ugu weyn waa 16 mm, 21 mm, 23 mm, 24 mm, 26 mm, 27 mm, 28mm.

Ka soo tiri cabbiraadaha labada dhinac ilaa uu hal ka soo haro. Xaaladdan waa marka tirada cabbiraaduhu kisi noqdaan. 16,21, 21, 24, 26, 27, 28 dhexfurka waa 24mm. Laakiin marka tirada cabbiraaduhu dhaban noqdaan labo ayaa soo haraysa uqaybi 2.

- (ii) Kuwan waa culaysyada carruur ku dhalatay isbitaal maalin:

2.4 kg, 2.6 kg, 2.3 kg, 3.1 kg, 3.6 kg, 3.2 kg, 3.8 kg, 4.1 kg.

Maxa ay ahayd culeyska dhexfurka ee caruurta maalintaas dhalatay ?

Culaysyada oo loo habeeyay min kan ugu yar ilaa kan ugu weyn waa:

2.3 , 2.4 , 2.6 , 3.1 , 3.2 , 3.6 , 3.8 , 4.1 .

$$\text{Dhexfur} = \frac{3.1 + 3.2}{2}$$

$$= \frac{6.3}{2}$$

$$= 3.15 \text{ kg}$$

Layli 1

1. Xisaabi tirosinka:

- b) 230, 240, 218, 226, 227, 222, 233
- t) 3222, 3456, 4018, 4563, 3423, 3333
- j) 36, 39, 35, 28, 29, 31
- x) 2.5, 4.8, 6.9, 2.75, 3.25, 9.6, 8.4

2. Sheeg badidhaca koox walba :

- b) 230, 240, 218, 226, 227, 222, 230
- t) 3222, 3223, 3018, 3563, 3323, 3222
- j) 36, 39, 35, 28, 29, 31, 36, 30, 36
- x) 2.5, 4.8, 6.9, 2.75, 3.25, 9.6, 8.4, 4.8, 8.4

3. Sheeg dhexfurka koox walba :

- b) 210, 217, 222, 220, 219, 221, 230
- t) 35, 36, 29, 45, 56, 67, 87
- j) 1.23, 1.24, 1.2, 1.25, 1.28, 1.30, 1.29
- x) 2.35, 3.23, 2.33, 4.32, 3.24

4. Da'da 8 wiil waa 10, 13, 12, 10, 12, 14, 12 iyo 13. Waa maxay taranka tirosinka, badidhaca iyo dhexfurka?

5. Sheeg dhexfurka ururka tirooyinka mutuxan ee u dhexeeya 1 iyo 50.

6. Sheeg b) badidheca b) dhexfurka ee koox walba:

- i) 2, 3, 4, 1, 6, 7, 5, 3, 8
- ii) 8, 7, 4, 9, 10, 12, 5, 11, 6
- iii) 2, 2, 0, 1, 3, 3, 4, 5, 2, 1, 6
- iv) 3, 0, 4, 5, 1, 3, 2, 1, 0, 3

7. Sheeg dhexfurka koox walba :

- b) 1.5 sm, 24 csm, 18 sm, 1.7 sm, 1.4 sm, 2.0 sm,
- t) 8 kg, 7 kg, 9 kg, 10 kg, 11 kg
- j) 40 g, 20 g, 30 g, 50 g, 10 g, 60 g
- x) 12.46, 11.48, 11.75, 12.80, 10.95

8. Heerkulka magaalo ee hal toddobaad waa :

Sabti 23°C Axad 25°C Isniin 23°C
 Talaado 26°C Arbaco 27°C Khamiis 28°C
 Jimco 23°C

Xisaabi tirosinka oo sheeg badidhaca heerkulka toddobaadka.

9. Labo iyo toban arday ayaa ka keenay imtixaan dhibcahan:

5, 6, 4, 8, 6, 4, 3, 9, 10, 11, 7, 9

b) Sheeg dhexfurka dhibcaha.

t) Sheeg badidhacaha dhibcaha .

j) Xisaabi tirosinka dhibcaha.

10. 748.5 litir oo shidaal ah ayaa dex maray tuubbo 5 saacadood. Maxa uu ahaa tirosintka dhaqsaha marista shidaalka tuubada dhexdeeda saacadiiba?

Tusaalooyin:

(i) Madiina waxa ay ka jawaabtay 10 su'aalood ee imtixaan. Tirosinka dhibcaheeda imtixaanka su'aashiiba waa 9. Lixda su'aal ee ugu horreeya tirosiinka dhibcaheeda waa 8.5. Immisa dhibcood ayaa ay keentay 4 ta su'aalood ee haray?

$$\text{Wadarta dhibcaha ay keentay waa } 10 \times 9 = 90$$

$$\text{Dhibcaha ay keentay 6 su'aal waa } 6 \times 8.5 = 51.0$$

$$\text{dhibcaha ay keentay 4 ta su'aalood ee haray waa } 90 - 51 = 39$$

(ii) Tirosinka da'da 23 gabdhood waa 17. Tirosinka da'da ardayda oo idil ee fasalka ku jirta waa 18. Waa maxay tirosinka da'da wiilasha haddii fasalka ay ku jiraan 50 arday?

$$\text{Wadarta da'aha ardayda fasalka oo idil waa } 50 \times 18 = 900 \text{ sano}$$

$$\text{Wadarta da'aha gabdhaha waa } 23 \times 17 = 391 \text{ sano}$$

$$\text{Tirada wiilasha} = 50 - 23 = 27 \text{ sano}$$

$$\text{Wadarta da'aha wiilasha waa} = 900 - 391 = 509 \text{ sano}$$

$$\text{Tirosinka da'da wiilasha waa } \frac{509}{27} \text{ sano}$$

$$= 18.85 \text{ sano}$$

(iii) Canab waxa ay keentay dhibcahan markii ay ka baxaysay dugsiga dhexe:

Ingiriis 65.

Saynis 76

Xisaab 80.

Carabi76

Cimiga bulshada 70,

Cilmiga islaamka 60

Soomaali 62

Taariikh 68

Maxa uu ahaa :

b) Tirosinka dhibcaha?

t) Dhexfurka dhibcaha?

b) Isugee dhibcaha oo idil ka dibna wadarta u qaybi 7.

$$\frac{65 + 80 + 70 + 76 + 60 + 62 + 68}{7} = \frac{481}{7} = 68 \frac{5}{7}$$

t) U habee dhibcaha si horsan min midka ugu yar ilaa midka ugu weyn t.a. 60, 62, 65,68, 70,76,80.

Dhexfurka dhibcaha waa 68.

Layli 2

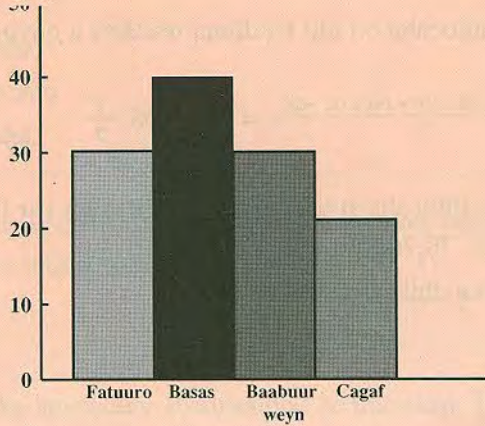
1. Tirosinka culayska 4 kartoon waa 8.5 kg. Saddex ka mid ah culayskoodu 7.7 kg, 7.6 kg iyo 8.2 kg. Waa maxay culayska kartoonka afaraad?
2. Lix wiil ayaa leh culays tirosinkiisu yahay 28 kg. Tirosinka culayska 4 ka mid ah waa 26 kg . Waa maxay tirosinka wiilasha kale?
3. Culayska shan wiil waa 50.1 kg, 50.30 kg, 50.25 kg. Wadarta culayska labada kale waa 100.4 kg. Haddii labdada mid ka mid ah culayskiisu yahay 50.15 kg, sheeg badidhaca?
4. Tirosinka dhibcaha Jamiila ee 7 maadadood waa 71 dhibcod. Tirosinka dhibcaha 4 maaddo oo ka mid ah waa 68 dhibcod. Immisa dhibcod ayaa ay keentay 3 da maaddo ee haray ?
5. Muuse waxa uu geeyay caano warshada caanaha subax iyo galab bishii Maarso , waxa uu geeyay caano celceliskoodu ahaa 186 litir subax walba. Haddii uu geeyay caano wadartoodu tahay 7620 litir bisha maarso, maxa uu ahaa celcelinta tirada litir ee uu geeyay galab walba?
6. Tirosinka 5 tiro waa 7. Labo tiro oo dheeraad ah ayaa lagu daray oo tirosinka waxa uu isu beddelay ilaa 56. Haddii hal ka mid ah tirooyinka tahay 9, raadi midda kale.

13 GARAAFYO

Garaaf jiitimeed iyo garaaf goobo

Tusaalooyin:

(i) Ka waa garaaf jiitimeed u taagan tirada gawaarida ay diiwaangeliyeen ardayda fasalka 8aad hal xiso.



- b) Ku bandhig xogta (garaaf goobo) .
 t) Waa maxay boqolleyda gawaarida oo idil cagaf-cagafka ahaa?
 c) Wadarta tirada gawaarida = $30 + 40 + 30 + 20 = 120$
 120 gaari waxa ay u dhigantaa 360°

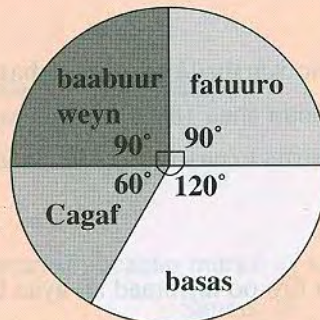
$$30 \text{ Fatuuro waxa ay u dhigantaa } \frac{30}{120} \times 360^\circ = 90^\circ$$

$$30 \text{ Baabuur waxa ay u dhigantaa } \frac{30}{120} \times 360^\circ = 90^\circ$$

$$40 \text{ basas waxa ay u dhigantaa } \frac{40}{120} \times 360^\circ = 120^\circ$$

$$20 \text{ cagaf-cagaf waxa ay u dhigantaa } \frac{20}{120} \times 360^\circ = 60^\circ$$

Nooca gawaarida



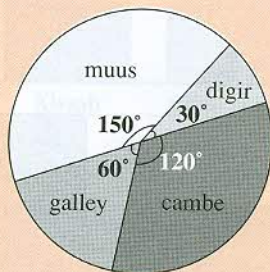
(b) Cagaf-cagafyada = $\frac{20}{120} = \frac{1}{6}$

t.a. $\frac{1}{4} \times 100\%$

= 16.7%

(ii) Garaaf goobedkan waxa uu u taagan yahay sida warsame uu u adeegsado beer 24 hi ah.

Adeegsiga dhul beereed 24 hi ah



b) Ku badhig xogtan garaaf jiiyimeed.

t) Waa maxay boqolleyda beertiisa ee uu u adeegsado muuska?

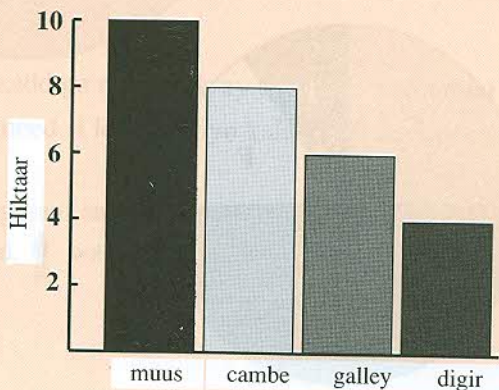
j) Bedka muuska = $\frac{150}{360} \times 24 = 10$ hi

Bedka cambaha = $\frac{120}{360} \times 24 = 8$ hi

Bedka Galleyda = $\frac{60}{360} \times 24 = 4$ hi

Bedka digirta = $\frac{30}{360} \times 24 = 2$ hi

Adeegsiga dhul beereed 24 hi ah



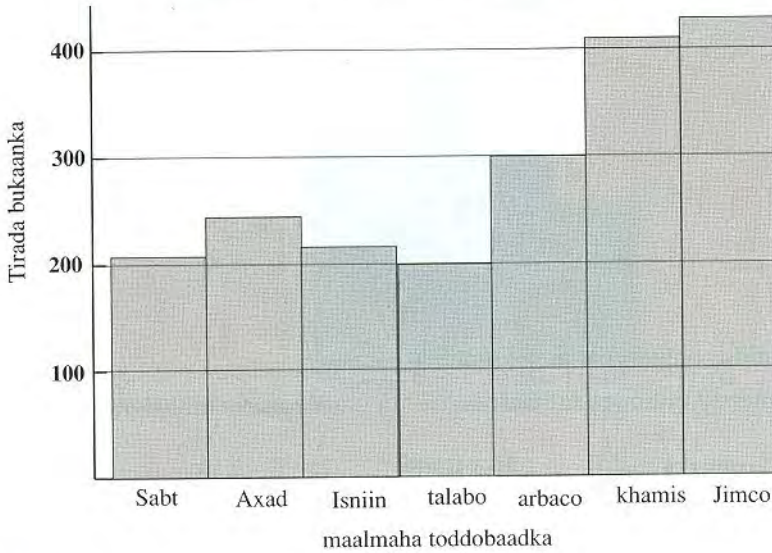
b) Xagasha muuska waa 150 ama bedka waa 10 hi.

$$\% \text{ Muuska } \frac{150}{360} \times 100\% = 41 \frac{2}{3} \%$$

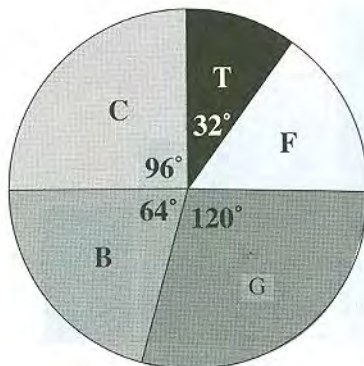
$$\% \text{ Muuska } \frac{10}{24} \times 100\% = 41 \frac{2}{3} \%$$

Layli 1

1. Garaaf jiiimeedka waxa uu muujinaya inta bukaan ee tagtay isbitaal hal toddobaad
Wadarta bukaan ee booqday isbitaal hal toddobaad

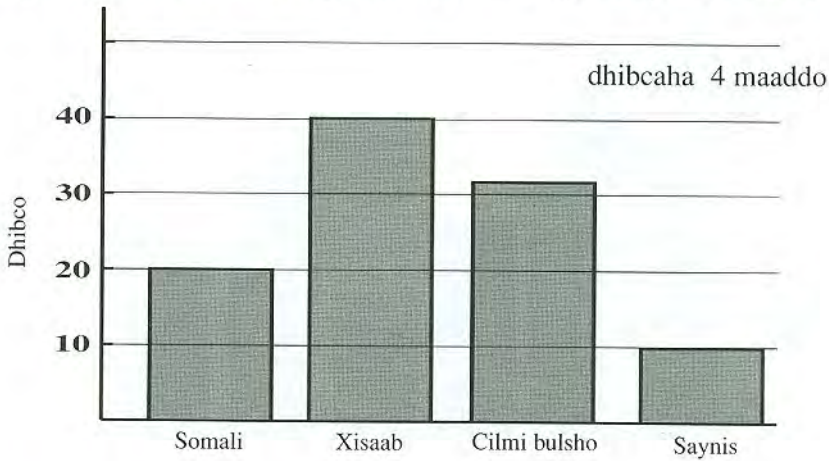


- b) Ku bandhig garaaf goobo xogtan garaaf jiiyimeedka.
 - t) Waa maxay boqolleyda bukaan ee tegay isbitaalka maalinta jimcaha?
 - j) Xisaabi oo sheeg tiroosinka iyo badidhacaha kaladhigidda
 - x) Maalintee ayaa uu isbitaalka wax u qabtay bukaan ugu badan?
 - kh) Maalintee ayaa uu isbitaalka wax u qabtay bukaan ugu yar ?
2. Garaafka goobo ee hoose waxa uu u taagan yahay tirada gawaarida hor martay tirokoobe hal saac .



- b) Ku bandhig garaaf jiiimeed xogta graafka goobada .
- t) Waa maxay boqolleyda gawaarida ee cagaf-cagafka ahaa?

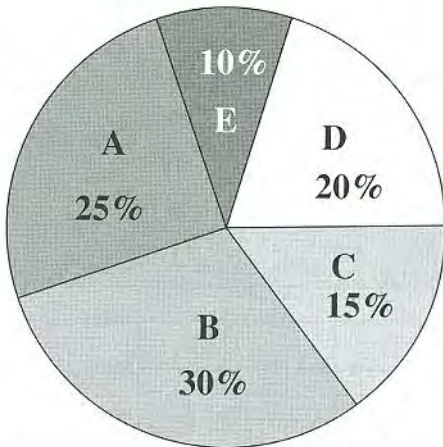
3. Garaaf jitimeedka waxa uu u taagan yahay dhibco laga helay afar maaddo



b) ku bandhig garaaf goobo xogtan.

t) Waa maxay boqolleyda wadarta dhibcaha ee xisaabta u taagan?


4. Garaafka goobada waxa uu muujinayaa xaddiyada roobka da'ay ee ay ururiyeen shan xaruumood. Raadi xagasha u taagan xarun walba. Haddii xaddiga rooka da'ay ee lagu diiwaangeliyay xarunta C uu ahaa 6mm, xisaab wadarta xaddiga roobka da'ay ee la diiwaangeliyay.



Xaddiga roobka da'ay ee 5 xaruumood






b) Xisaab tirosinka xaddiga roobka da'ay ee shanta xaruumood .

t) Sawir garaaf jiitimeed si loo muujiyo kala dhiga xaddiyada roobka da'ay ee shanta xaruumood.

5. Halka waxa ku yaal garaaf sawireed muujinaya inta dad ee tegay maqaayadda safiya muddo hal toddobaad.  waxa uu u taagan yahay 10 qof.

Sabti 

Axad 

Isniin	
Talaado	
Arbaco	
Khamiis	
Jimco	

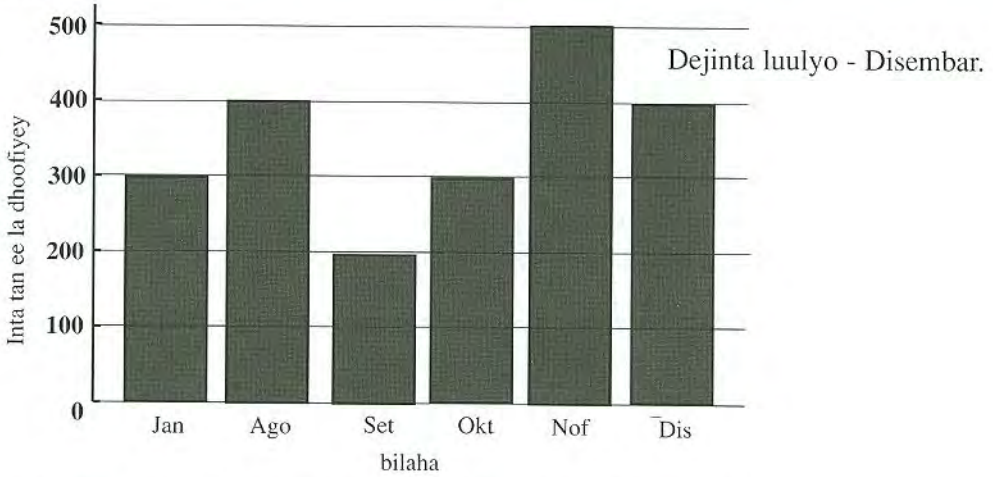
- b) Ka sawir garaaf jiidimeed xogta garaaf sawireedka
 t) Xisaabi tirosinka tirada dadka tegay maqaayadda.
 j) Immisa qof ayaa ay maalinta Khamiista ka badnayd Arbacada?
 x) Labadee maalmood ee isku xiga ayaa tirada dadka korodhkooda badnaa?
 kh) Labadee maalmood ee isku xiga ayaa tirada dadka korodhkooda yaraa?

6. Tusahan waxa uu muujinayaa alaabta Soomaaliya u dhoofisay tan ahaan, dalal kale.

	1990	1991	1992	1993	1994
muus	530	485	500	490	520
galley	220	200	275	300	320
diggir	890	885	825	850	800
qare	1200	1250	1000	1100	1350

- b) Ku muuji xogtan graaf goobo .
 t) Sawir garaaf jiidimeed si ay ugu taagnaato xogta .
 j) Mirihee leh tanka ugu badan?
 x) Mirihee leh tanka ugu yar?

7. Garaafka hoose waxa uu muujinayaa alaabta ay soo dejisatay Soomaaliya min luulyo ilaa Dicemebar .

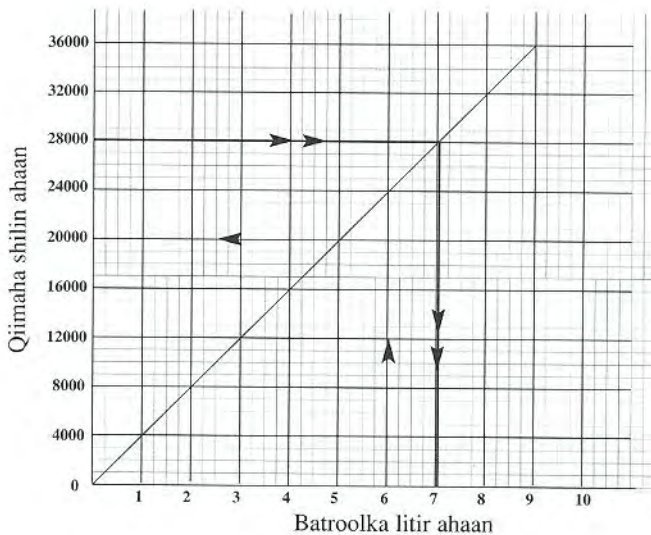


- b) Labadee bilood dhexdooda ayaa ay soo dejintu aad u korodhay?
- t) Labadee bilood dhexdooda ayaa ay soo dejintu ay korodh yarayd?
- j) Bishee ayaa ay le'ekayd soo dejinta 40 tan?
- x) Maxa ay ahayd tirosinka soo dejinta inta u dhexaysa Luulyo iyo Disembar?

Garaaf xarriiqeed

Garaaf waa inuu yeeshaa:

- Iskeel jiif oo habboon
- Iskeel joog oo habboon
- cinwaan



Sicirka shidaalka

iskeelka jiifka : 1 sm : 1 l.

Iskeelka joogga : 1 sm : sh. 4000

Si loo sheego sicirka 5 l oo shidaal :

- Min eber u dhaqaaq midig ilaa 5
- U dhaqaaq xagga sare ee xarriiqda
- U dhaqaaq bidix ilaa dhidibka sicirka

5 litir sicirkeedu waxa uu noqonayaa sh 20 000.

Si loo sheego qaadka shidaal qiimahiisu yahay sh. 28 000

- min eber u dhaqaaq xagga sare ilaa 28 000
- u dhaqaaq midigta xarriiqda
- u dhaqaaq dhinaca hoose ee dhidibka litirka

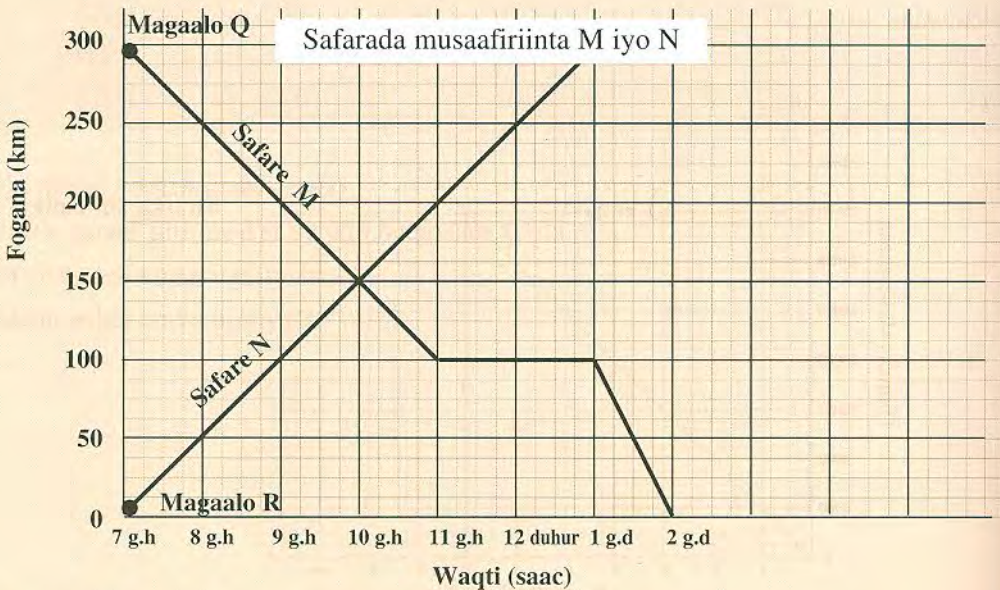
Sh 28 000 waxa lagu iibsanaa 7 litir .

Garaafka sicirka shidaalka ee kore waxa uu tusaale garaaf isku beddelid. Garaaf isku beddelida waxa yeelan kara dhibcaha , fogaanta iyo heerkulka iwm.

Xarriiqaha isgoya

Tusaalooyin:

(i) Garaafkan waxa uu muujinaa safar labo musaafir, M iyo N. Mid safarkiisa waa uu ka bilaabay Magaalada R ilaa Magaalada Q. Ka kalena magaalada Q ilaa magaalada R



b) Maxa uu ahaa waqtiga labada musaafir ay kulmeen?

t) Miisha ay ku kumeen immisa ayaa ay ka fog tahay magaalada Q?

- j) Maxa uu ahaa waqtiga markii musaafir N uu gaaray magaalada Q?
- x) Maxa uu ahaa waqtiga markii musaafir M uu gaaray magaalada R?
- kh) Maxaa uu sameynaayay musaafir M inta u dhexeysay 11:00 g.h. iyo 1:00 g.h.?
- d) Maxa uu ahaa celceliska xawaaraha musaafir N?
- r) Maxa uu ahaa celceliska xawaaraha musaafir M?

Jawaabo:

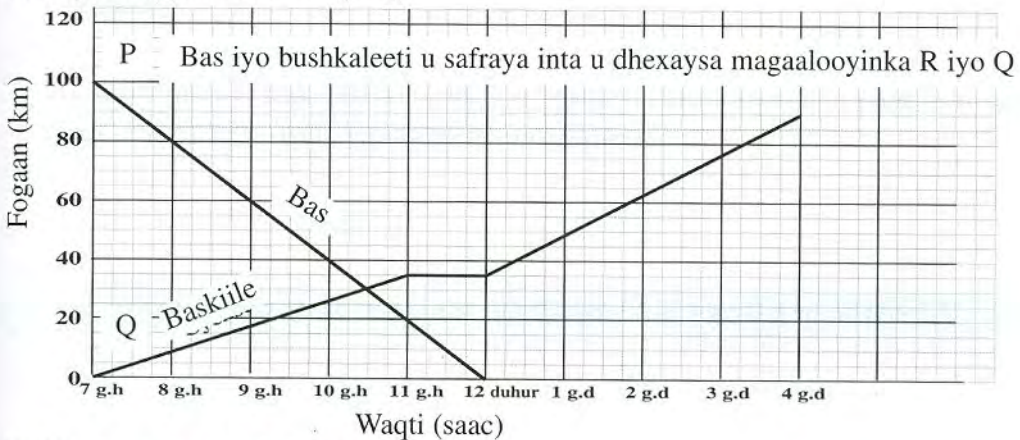
- b) Labada musaafir waxa ay ku kulmeen meesha labada xarriiq ay iska gooyaan. Waqtiguna waxa uu ahaa 10:00 g.h.
- t) Fogaanta uu musaafir M uu jaray min $Q = 300\text{km} - 150\text{km} = 150\text{km}$. Haddaba meesha ay ku kulmeen waxa ay magaala Q u jirtay 150km.
- j) Musaafir N waxa uu gaaray magaalada Q marka ay ahayd 1:00 g.d.
- x) Musaafir M waxa uu gaaray magaalada R marka ay ahayd 2:00 g.d.
- kh) Musaafir M waa uu istaagay , waxa dhici karta in nasanaayay, cunto cunaayay, ama shir ka qaybgalaayay .

$$\begin{aligned} \text{Celceliska xawaaraha musaafir N} &= \frac{\text{Wadarta fogaanta uu jaray}}{\text{wadarta waqtiga ay ku qaadatay}} \\ &= \frac{300}{6} \\ &= 50 \text{ km/saac} \end{aligned}$$

$$\begin{aligned} \text{Celceliska xawaaraha musaafir M} &= \frac{\text{Wadarta fogaanta uu jaray}}{\text{wadarta waqtiga ay ku qaadatay}} \\ &= \frac{300}{7} \\ &= 42 \frac{6}{7} \text{ km/saac} \end{aligned}$$

Layli 2

1. Garaafkan waxa uu muujinayaa safar ay ku sameeyeen bas iyo bushkaleeti inta u dhexaysa magaalootinka R iyo Q.



- b) Waqtigee ayaa ay kulmeen labadooda?

- t) Meesha ay ku kulmeen immisa ayaa ay ka fageed magaalada R?
 j) Meesha ay ku kulmeen immisa ayaa ay ka fageed magaalada Q ?
 x) Maxa uu ahaa celceliska xawaaraha baska ?
 kh) Maxa uu ahaa celceliska xawaaraha bayskiilka?
2. Tusaha hoose waxa uu u taagan yahay sicirka shidaal gaar ah.

xaddiga (l)	1	2	3	4	5
Sicirka (sh)	3 000	6 000	9 000	12 000	15 000

- b) Sawir garaaf u taagan xogtan. Xusuuso in aad habayso:
- Iskeel jiif oo habboon
 - Iskeel joog oo habboon
 - Cinwaan
- t) Waa Immisa sicirka 4.5 litir ee shidaalka?
 j) Immisaa litir ayaa lagu soo iibsan karaa sh 13 500?
3. Bare ayaa imtixaan ku saxay 20 dhibcood .
- b) Sawir garaaf isku beddelid ee boqolleyda, taas oo $100\% \equiv 20$ dhibcood
 t) Waa maxay boqolleyda dhibcaha arday helay 8 dhibcood ?
 j) Waa maxay boqolleyda dhibcaha arday helay 15 dhibcood?
 x) Waa maxay dhibcaha u dhigma 90%?
 kh) Waa maxay dhibcaha u dhigma 65%?

14 EREYADA ASAASKA U AH ITIMAALKA

Marka kor loo tuuro furka dhalada kookaha waxa soo baxaya madax ama xarash. Waxa soo baxa waxa la yiraahdaa Natiijo. Labada natiijo si isku mid ah ayaa ay u soo baxaan.

Isku deyidda sadaalinta natiijada fur hal mar la tuuray. Waxa jira hal fursad labo mid uun lagu helo madax iyo hal fursad labo mid uun lagu helo xarash. Itimaalka madaxa waa $\frac{1}{2}$. iyo itimaalka xarashka waa $\frac{1}{2}$

$$I(M) = \frac{1}{2}$$

$$I(x) = \frac{1}{2}$$

Kuwan waxa la yiraahdaa itimaalka aragtiyeed. Tijaabada, haddii fur la tuuro 100 mar, Natiijadu waxa ay noqon kartaa mid aan dheelitirnayn.

Tusaalooyin:

- (i) U tibaax hawraar kasta itimaal la fududeeyay ahaan.
- b) Waxa jira hal fursad oo ku jira lix in la helo 3 marka laadhuu la tuuro
- t) Waxa jira fursad 20% in roob da'o .
- j) Waxa jira fursad 50 / 50 ah in lagu guuleysto cayaar.
- b) Itimaalka lagu helaayo 3 waa:

$$I(3) = \frac{1}{6}$$

- t) Waxa jira 20 fursadood boqolkii in uu roob da'o.

$$\begin{aligned} I(\text{roob}) &= \frac{20}{100} \\ &= \frac{1}{5} \end{aligned}$$

- j) Waxa jira hal fursad oo labo ku guulaysiga cayaarta

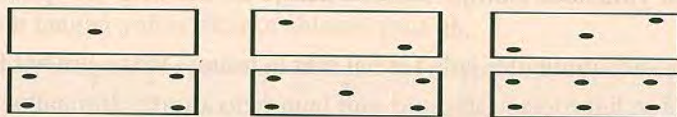
$$I(\text{guul}) = \frac{1}{2}$$

Tijaabada tuurista furka, labada natiijo ee madax(m) ama xarash(x) waxa lagu qori karaa urur S, waxaana la yiraahdaa muunad dulalaati.

$$S = \{m, x\}$$

Muunad dhulalaati waa ururka natijooyinka suuragalka ah oo dhan.

- (ii) Laadhuu ayaa la tuuray. Waxa jira 6 natiijo oo suuragal ah. Haddi laadhuudu sax tahay, markaa tirooyinka oo idil waxa ay leeyihiin fursad isku mid ah oo ay ku soo kor maraan. waxa aan oranayna waqdhacyadan waa ay isle'eg yihiin. Muunad dulalaatiga waa:



$$S = \{1, 2, 3, 4, 5, 6\}$$

Waqdhac waa hormo urur muunadda dulalaatiga.

- (iii) Laadhuu ayaa la tuuray. Waxa natiijooyinka sameynaya waqdhacyada soo socda iyo itimaalka waqdhac kasta.

- b) Waqdhaca E oo ah helidda tiro dhaban.
- j) Waqdhaca A oo ah helidda tiro ka weyn 4.
- t) Waqdhaca B oo ah helidda tiro ka yar hal.
- x) Waqdhaca C oo ah helidda Tiro ka weyn 0.

$$b) E = \{2,4,6\}$$

Haddii laadhuudu sax tahay, natiijooyinka 1,2,3,4,5 ama 6 waa isleeg tahay soo bixitaankooda. Maadaama ay jirto 3 fursadood oo lagu heli karo tiro dhaban ah.

$$\begin{aligned} I(E) &= \frac{3}{6} \\ &= \frac{1}{2} \end{aligned}$$

$$t) A = \{5,6\}$$

Maadaama natiijooyinka ay si isleeg u soo baxayaan, waxa jira in 6 laga heli karo 2 fursadood oo tiro ka weyn 4.

$$\begin{aligned} I(A) &= \frac{2}{6} \\ &= \frac{1}{3} \end{aligned}$$

- j) Maadaama aysan natiijada ku jirin tiro ka yar 1, $B = \{\} = \emptyset$

Maadaama ay 6da ka jiraan 0 fursad si loo helo tiro ka yar 1.

$$\begin{aligned} I(B) &= \frac{0}{6} \\ &= 0 \end{aligned}$$

$$x) C = \{1,2,3,4,5,6\}$$

Madaama ay ka jiraan 6 da 6 fursadood ee lagu helayo tiro ka weyn 0

$$I(C) = \frac{6}{6} = 1$$

Natiijada tusaalihii hore waxa aan si guud uga dhigi karnaa sida soo socota.

Tirada natiijooyinka laga guul gaaray = Wadarta tirada natiijooyinka suuragalka ah

b) Itimaal waqdhac waa tiro u dhexeysa 0 iyo 1 oo ay ku jiraan .

$$0 \leq I(\text{waqdhac}) \leq 1$$

t) Itimaal waqdhac aan suuragalka ahayn waa 0.

j) Itimaalka waqdhaca hubintida ah waa 1.

x) Guud ahaan, haddii muunada dulalaati ay ka kooban tahay N natiijooyin oo isle'eg oo haddii S da natiijooyin laga texgeliyay in guul laga gaaray ama la doorbidayo waqdhac W, marka:

$$\text{Itimaalka waqdhac } (W) = \frac{\text{Tirada natiijooyinka laga guul gaaray}}{\text{Wadarta tirada natiijooyinka suuragalka ah}}$$

$$I(W) = \frac{S}{N}$$

(iv) Haddii warqad turub ah si xulusho la'aan looga soo saaro baako turub oo ay ku jiraan 52 waraaq, waa maxay itimaalka in waraaqda ay noqoto

b) baashe?

t) hadhiin?

b) Natiijooyinka muunad duleelaatiga waa siman yihiin .

Ka soo qaad in B ay u taagan tahay helista baashe. Muunad dulalaatiga waxa uu ka kooban yahay 52 natiijo oo kala duwan. Maadaama ay jirto 4 baashe afar ka mid ah natiijooyinka ayaa la tixgelinayaa (laga guul gaaray)

$$N = 52 \text{ iyo } S = 4$$

$$I(K) = \frac{S}{N}$$

$$= \frac{4}{52}$$

$$= \frac{1}{13}$$

itimaalka la heli karo baashe waa $\frac{1}{13}$

t) Ka soo qaad in H noqdo waqdhac helitaanka hadhiin, waxa ku jira muunad dulalaatiga 52 natiijo oo siman. Maadama ay ku jiraan 13 hadhiin, markaa waxa jira 13 natiijooyin oo la heli karo. Itimaalka helitaanka hadhiin waa

$$I(H) = \frac{S}{N}$$

$$= \frac{13}{52}$$

$$= \frac{1}{4}$$

Xaaladaha qaarkood waa suuragal in la taxo natiijooyinka muunad duleelatiga haddana weli aan la garanayn itimaalka natiijo walba. Itimaaladan mararka qaarkood waxa suuragal ah in laga helo tijaabooyin.

Itimaalka laga helo xog laga soo uruuriyay tijaabo
ayaa lagu magacaaba itimaalka tijaabo.

(iv) Biin sawireed ayaa soo dhacay . Waa maxay itimaalka in uu u dhaco isaga kor u jeeda? Haddii biin sawireed soo dhaco , waxa jira labo natiijo oo suuragal ah in :

b) Madaxa uu kor tilmaam,

t) Madaxa uu hoos tilmaamo

Muunad dulalaatiga $S = \{ \text{kor} , \text{hoos} \}$.

Si loo baaro itimaal tijaabo ee natiijo walba , waxa aan sameynaynaa tijaabo ah in biin sawireed uu soo dhacay dhawr jeer, oo aan diiwaan gelinay xogta .

Ka soo qaad xogta tijaabadaas oo kale in ay ahayd sida soo socota.

Tirada la tuuray : 100

Tirada "kor" : 56

Tirada "hoos" : 44

Itimaalada tijaabada waxa loo soo koobay sida soo socota:

$$I(\text{kor}) = \frac{56}{100} = \frac{11}{25}$$

$$I(\text{hoos}) = \frac{44}{100} = \frac{11}{25}$$

Layli 1

1. U tibaax mid kasta ee soo socda itimaal fudud ahaan.
 - b) Waxa jira fursad 60% in aan sanadkan helo shaqo.
 - t) Cayaaryahanka 20% waa uu dhaliyay darbooyinkiisa.
 - j) Waxa jira fursad 50 /50 in aan sameyn doono koox, cayaareed.

2. Tax muunad dulalaatiga mid kasta ee tijaabooyinka soo socda:
 - b) Tuurista furka kookada.
 - t) Tuurista laadhuu lix -dhinacle ah.
 - j) Ka soo saaris koofi magac haddii magacyada koofida ku jira yihiin Warsame, Dayib, Cali iyo Nuur.

3. Waxa la tuuray laadhuu, waa maxay itimaalka lagu heli karo.
 - b) 2?
 - t) Tiro kisi?
 - j) Dhufsanayaasha 2?
 - x) Tiro u qaybsami karta 3?
 - kh) 7?
 - f) tiro mutuxan ee ka yar 7?

4. Warqad turub ayaa waxa laga soo saaray baako turub oo ay ku jirto 52 waraaq .Waa maxay itimaalka in ay noqoto.
 - b) 5 karaawil ?
 - t) isbbig?
 - j) Yake
 - x) Waraaq casaan

5. Fasalka xisaabta waxa ku jiray 12 wiil iyo 18 gabdho. Baraha waxa uu doortay hal arday si xulasho la'aan ah si uu uga jawaabo su'aal
 - b) Waa maxay itimaalka in uu doorto gabar?
 - t) Waa maxay itimaalka inuu doorto wiil?
 - j) Waa maxay itimaalka in uu doorto gabadha ama wiilku?

6. Sanduuq ayaa waxa ku jiray 3 kuul casaan ah , 4 kuul madaw `iyo 5 kuul oo cadaan ah , waa in aad ka soo saartaa hal kuul xulasho la'aan .
 - b) Immisa natiijo oo suuragal ah ayaa jira?
 - t) Haddii aad rajaynayso in aad soo saarto kuul casaan ah immisa natiijo ayaa suuragal ah ?
 - j) Waa maxay itimaalka in aad soo saarto kuul casaan ah?
 - x) Waa maxay itimaalka in aad soo saarto kuul madow ah?
 - kh) Waa maxay itimaalka in aad soo saarto kuul aan casaan ahayn?

15 ALJEBRA

Isle'eg toosan ee labo doorsoome leh

Cabdi iyo Jaamac waxa ay haysteen 6 buug. weedha waxa ku jira labo tiro oo aan la aqoonin (doorsoome). Taas oo ah tirada buugaagta uu Cabdi haysto iyo tirada buugaagta uu Jaamac haysto.

Ka soo qaad Cabdi in uu haysto x buugaag oo uu jaamac-na haysto y buugaag.

Haddaba $x + y = 6$

x	y
0	6
1	5
2	4
3	3
4	2
5	1
6	0

Tirooyinkee ka dhigaya weerta hawraar run ah?

Tusaha waxa uu muujinaya tirooyin lammaanayaal horsan ee weerdha ka dhigaya hawraar run ah t.a. (0,6), (1,5), (2,4), (3,3), (4,2), (5,1), 6,0) waa lammaanayaal horsan. (1,5) iyo (5,1) ma isku micno ayay leeyihiin? Maya, Maxayeelay tirada hore waxa ay u taagan tahay tirada buugaagta Cabdi uu haysto oo tirada labaadna waxa ay u taagan tahay tiraa buuggaagta uu Jaamac haysto, Haddaba:

(1,5) micnaheedu waa Cabdi waxa uu haystaa 1 buug oo jaaman-na waxa uu haystaa 5 buug. (5,1) micnaheedu waa Cabdi waxa uu haysta 5 buug oo jaaman-na waxa uu haysta 1 buug.

Ururka lammaanayaasha horsan ee ka dhigi kara isle'eg hawraar run ah waxa la yiraahdaa **Urur furfuris**.

Isle'eg kasta oo leh sansaanka $ax + by = c$ waa iele'eg toosan halka a, b, c ay yihiin abyoneyaal oo a iyo b aan labaduba eber ahayn.

Tusaalooyin:

- (i) Qor urur furfurista ka dhigaysa isle'egta $y = x + 2$ hawraar run ah.
 $x, y \in$ abyooone $-4 \leq x \leq 3$.

x	$x + 2$	y
0	$0 + 2$	2
1	$1 + 2$	3
2	$2 + 2$	4
3	$3 + 2$	5
-1	$-1 + 2$	1
-2	$-2 + 2$	0
-3	$-3 + 2$	-1
-4	$-4 + 2$	-2

Sida awgeed urur furfurista waa $\{(0,0), (1,3), (2,4), (3,5), (-1,1), (-2,0), (-3,-1), (-4,-2), \dots\}$

(ii) Qor lix lammanayaal horsan oo abyooneyaal ah ee run ka dhigaya isle'egta

$$6x + 2y = 14$$

$$6x + 2y = 14$$

$$2y = 14 - 6x$$

$$y = \frac{14}{2} - \frac{6x}{2}$$

$$y = 7 - 3x$$

x	7 - 3x	y
-4	7 - 3(-4)	19
-3	7 - 3(-3)	16
-2	7 - 3(-2)	13
-1	7 - 3(-1)	10
0	7 - 3(0)	7
1	7 - 3(1)	4
2	7 - 3(2)	1
3	7 - 3(3)	-2
4	7 - 3(4)	-5

Sida awgeed urur furfurista waa:

{ (-4, 19), (-3, 16), (-2, 13), (-1, 10), (0,7), (1, 4), (2,1), (3,-2), (4, -5)..... }

(iii) (-1,9) ma waxay ku jirta urur furfurista $2x + y = 7$.

marka $x = -1$ oo $y = 9$

$$\text{Dh. B.} = 2x + y \quad \text{Dh.M.} = 7$$

$$= 2(-1) + 9$$

$$= -2 + 9$$

$$= 7$$

Maadaama Dh. B. = Dh.M, (-1,9) waxay ku jirtaa urur furfurista

(iv) (3,6) ma raali gelinaysaa isle'egta $y = 4x - 7$

Marka $x = 3$ oo $y = 6$

$$\text{Dh. B.} = y \quad \text{Dh. M.} = 4x - 7$$

$$= 6 \quad = 4(3) - 7$$

$$= 12 - 7$$

$$= 5$$

Maadaama Dh. B \neq Dh. M, (3,6) ma raali gelinayso $y = 4x - 7$ oo (3,6) kuma jirto urur furfurista .

Layli 1

1. Sheeg Lammane horsan tirooyin oo kasta in ay yihiin urur fufurista isle'egyta la isa siiyay.

b) $x - y = 5$ (9,4), (7,3) t) $x + 2y = 8$ (3,3), (0,4)

j) $3x + y = 6$ (2,0), (3,-1) x) $12 - y = 3x$ (5,-3), (, 11)

2. Qor urur furfurista isle'eg kasta ee soo socota.

b) $y = x$ t) $y = 4x$ j) $y = x - 5$ x) $y = 2x + 3$

kh) $y = 2x + 3$ d) $y = 2x - 1$ r) $x - 2y = 10$ s) $y - x = 2$

Garaafka isle'egyada toosan oo leh labo doorsoome

Garaafka isle'egta toosan ee laba doorsoome leh waa xarriiq toosan.

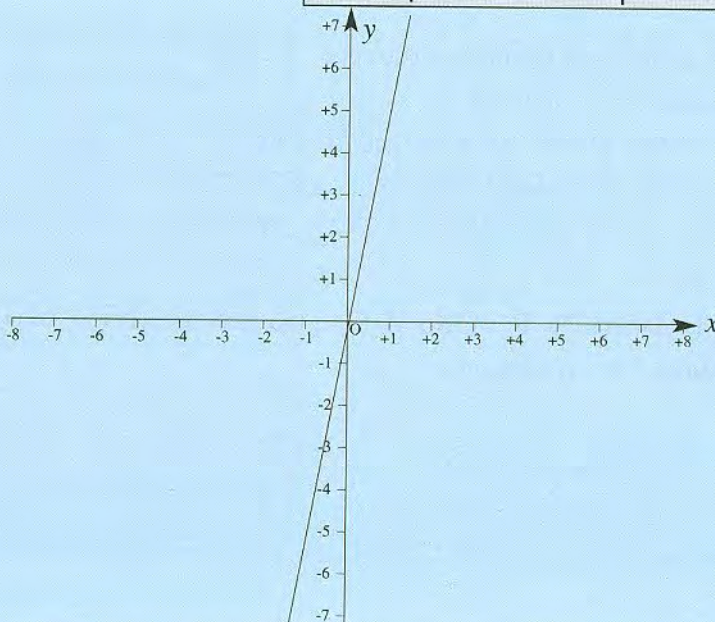
Si loo sawiro garaafka isle'eg toosan oo leh labo doorsoome:

- Samee tusaha qiimayaasha si loo helo ugu yaraan afar lammaane horsan ee isle'egta;
- Bardhig urur furfurista adiga oo adeegsanaya kulannada x iyo y (Lammaane horsan kasta ee ku jira urur furfurista waxa uu u taagan yahay bar)
- Isku xer baraha.

Tusaalooyin:

(i) Sawir garaafka isle'egta $y = 5x$
 Samee tuse si loo helo ugu yaraan laba lammaane horsan ee isle'egta realigeliyo.

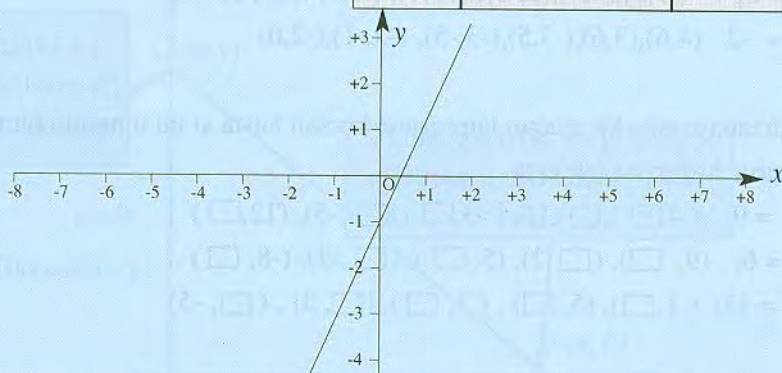
x	5x	y	(x,y)
0	5 (0)	0	(0,0)
1	5 (1)	5	(1,5)
2	5 (2)	10	(2,10)
-1	5 (-1)	-5	(1,- 5)
-2	5 (-2)	-10	(2,- 10)



(ii) Sawir garaafka isle'egta:

$$y = 2x - 1$$

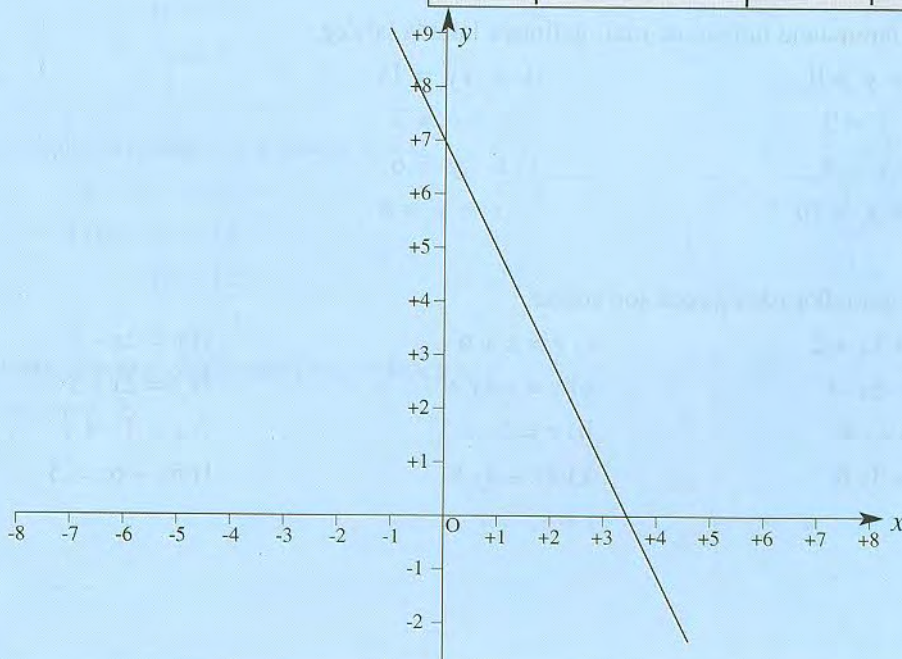
x	$2x$	y	(x,y)
0	$2(0)-1$	-1	(0,-1)
1	$2(1)-1$	1	(1,1)
2	$2(2)-1$	3	(2,3)
-1	$2(-1)-1$	-3	(-1,-3)
-2	$2(-2)-1$	-5	(-2,-5)



(iii) Sawir garaafka isle'egta $2x + y = 7$

- U furfur isle'egta la isa siiyay
 $y, y = 7 - 2x$
- Samee tuse si loo helo urur
furfurista (lammaane horsan)

x	$7-2x$	y	(x,y)
-1	$7 - 2(-1)$	9	-1, 9
0	$7 - 2(0)$	7	0,7
1	$7 - 2(1)$	5	1,5
2	$7 - 2(2)$	3	2,3
3	$7 - 2(3)$	1	3,1
4	$7 - 2(4)$	-1	4,-1



Layli 2

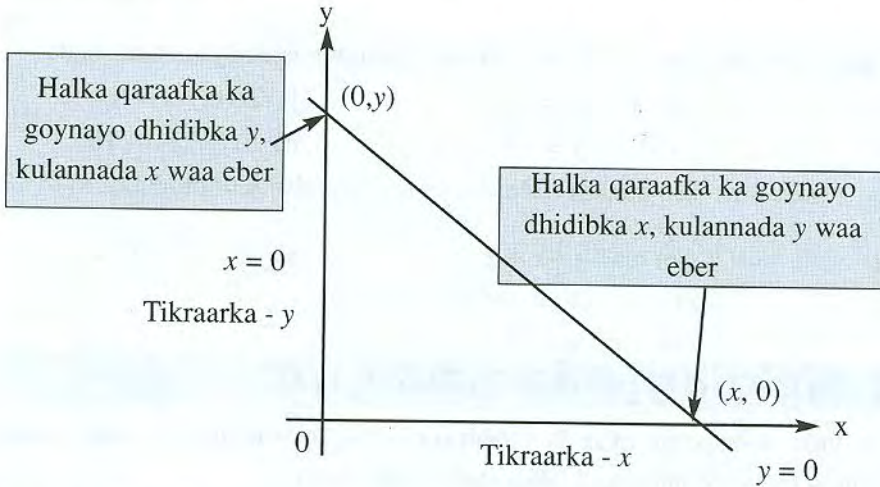
- Hubi in lammaanayaasha horsan ee raacsan isle'egta in ay yihiin kutirsanayaal urur furfurista iyo in kale:
 - $x + y = 14$; (2,12), (0,14),(-1,16), (4,9), (-7,19), (20,-6)
 - $2x + y = 13$; (0,12), (1,11),(7,-1), (5,2),(-3, 20),(10,-7)
 - $x - y = 8$; (9,1),(4,4),(2,-6), (13,4), (-6,-14),(3,-5)
 - $x - y = -2$ (4,6),(3,6),(-3,5),(-3,-5), (-3,-1),(-2,0)
- Sheeg kutirsanayaasha ka maqan lammaane horsan kasta si uu u noqdo lammaane kasta kutirsane urur furfurista isle'egta
 - $x + y = 9$; (4,□), (□, 1), (-3,□), (□, -5), (12,□)
 - $x - y = 6$; (9, □), (□, 2), (5, □), (□, -3), (-8, □)
 - $2x + y = 15$; (1,□), (5, □), (7, □), (□, 3), (□, -5)
- Xaalad kasta, sheeg lammaanaha horsan ee raali gelinaaya labada isle'eg .
 - $x + y = 4$
 $x - y = 2$ (2,2), (5,3), (3,1), (1,3)
 - $x - y = 1$
 $x + y = 7$ (3,2), (9,-2), (12,-5), (4,3)
 - $2x + y = 7$
 $x + y = 5$ (1,5), (2,3), (0,7), (-2,7)
- Raadi lammaane horsan ee raali gelinaya labada isle'eg.

b) $x + y = 9$	t) $x + y = 11$
$x - y = 3$	$x - y = 3$
j) $x - y = 4$	x) $x - y = 6$
$x + y = 10$	$x + y = 8$
- Sawir garaafka isle'egyada soo socda:

b) $y = 3x + 2$	t) $y = x + 6$	j) $y = 2x - 3$
x) $y = 3x - 4$	e) $y = -4x + 7$	f) $y = 2x - 5$
g) $x = y - 4$	h) $x = 2y + 3$	i) $x = 3 - 4y$
j) $2x + 3y = 6$	k) $2x + 4y = 8$	l) $5x + 6y = 5$

Sawiridda garaafka iyada oo la adeegsanayo tikraaro

Isle'egyada waxa dhici karta in la sawirro garaafkooda iyada oo la adeegsanayo tikraaro. Tikraarka - x ee isle'eg waa dhidibka - x ee barta xarriiqda ka goynaysa dhidibka- x . Tikraarka - y ee isle'eg waa dhidibka- y ee barta xarriiqda ka goynaysa dhidibka- y .



Tusaalooyin:

(i) Sawir garaafka isle'egta $4x - 3y = 12$,

Si loo helo tikraarka - x , u qaado $y = 0$.

$$4x - 3y = 12$$

$$4x - 3(0) = 12$$

$$4x = 12$$

$$x = 3$$

Si loo helo tikraarka - y , u qaado $x = 0$.

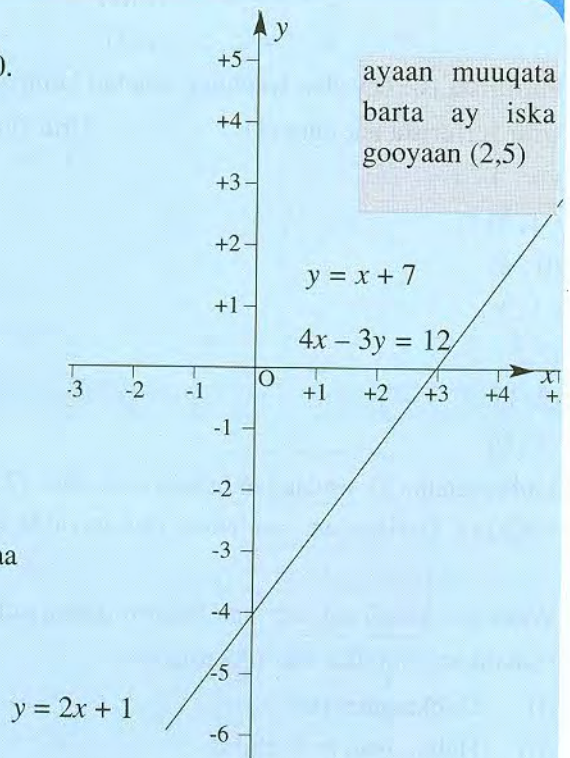
$$4x - 3y = 12$$

$$4(0) - 3y = 12$$

$$-3y = 12$$

$$y = -4$$

3 waxa la yiraahdaa tikraarka x , -4na waa tikraarka y



Layli 3

1. Sheeg tikraarka- x iyo tikraarka- y ee isle'eg kasta oo soo socota:

b) $2x + 3y = 6$

t) $4x + 3y = 12$

j) $3x + y = 9$

x) $x + 4y = 8$

kh) $5x - 2y = 10$

d) $7x - 3y = 21$

r) $y = 4x - 8$

s) $y = -3x + 12$

sh) $4x - 5y = -20$

2. Adeegso tikraarka- x iyo tikraarka- y si aad u sawirto garaafka isle'egyada soo socda:

b) $4x + 5y = 20$

t) $3x - 4y = 2$

j) $2x + y = 4$

x) $5x + 3y = 15$

kh) $x - y = -7$

d) $5x + 2y = -10$

r) $y = 3x - 6$

s) $y = -2x + 4$

sh) $y = -x - 3$

dh) $y = \frac{1}{2}x + 2$

c) $y = -\frac{1}{3}x + 2$

g) $\frac{x}{2} + \frac{y}{3} = 1$

Furfurista isle'egyada wadajira

Labo isle'eg oo leh labo doorsoome ayaa la yiraahdaa isle'egyo wadajira. Tusaale ahaan: Wadarta labo tiro waa 4 faraqooduna waa 2. Waa maxay labada tiro?

Si loo tarjumo mas'allada, u qaado tirada weyn x oo tirada yarna u qaado y . Taas oo ah:

$$x + y = 4 \dots \dots \dots (1)$$

$$x - y = 2 \dots \dots \dots (2)$$

Furfurista isle'egysdan wadajira waa hal lammaane horsan oo raali gelinaya labada isle'eg .

Urur furfurista isle'egta (1)

Urur furfurista isle'egta (2)

$$y = 4 - x$$

$$y = x - 2$$

$$(-1, 5)$$

$$(-1, -3)$$

$$(0, 4)$$

$$(0, -2)$$

$$(1, 3)$$

$$(1, -1)$$

$$(2, 2)$$

$$(2, 0)$$

$$(3, 1)$$

$$(3, 1)$$

$$(4, 0)$$

$$(4, 2)$$

Lammaanaha ay wadaagan labada urur waa (3, 1) kaas oo ah urur furfurista labada isle'eg ee wadajira. Dariiqadan waa habka isku dayidda iyo khaladka .

Waxa jira habab kale ee lagu furfuro isle'egyada wadajira.

Hababkan garaafka waxa ka mid ah:

(i) Habka garaafka

(ii) Habka isku beddelidda

(iii) Habka isugeynta ama kalagoynta.

Hababka sawiridda garaafyada

Si loogu furfuro isle'egyada wadajira habka garaafka:

Sawir garaafka labada isle'eg oo sheeg kulannada barta ay iska gooyaan labada xarriiq.

Tusaalooyin:

(i) Ku furfur habka garaafka

$$y = 2x + 1$$

$$y = -x + 7$$

Marka hore u samee tuse isle'eg kasta si loo helo urur furfurista.

$$y = 2x + 1$$

$$y = -x + 7$$

x	y
0	1
1	3
2	5
3	7

Bar dhig barahan kullannada ka dibna isku xir. Ma heshay urur furfurista isle'egyada oo ah (2,5).

x	y
0	7
2	5
4	3
6	1

Hubi (2,5) in ay ku jirto furfurista $y = 2x + 1$

dh.B = y

$$= 5$$

dh.M = $2x + 1 = 2(2) + 1 = 5$

Hubi (2,5) in ay ku jirto furfurista $y = -x + 7$

dh.B = y

$$= 5$$

dh.M = $-x + 7 = -2 + 7 = 5$

madaama barta ay rali gelinayso labada isle'eg, marka waxa aan oran karnaa urur furfurista isle'egtan waa (2,5).

(ii) Ku furfur habka garaafka

$$y + 2x = -5 \text{ -----(1)}$$

$$y - 3x = 5 \text{ -----(2)}$$

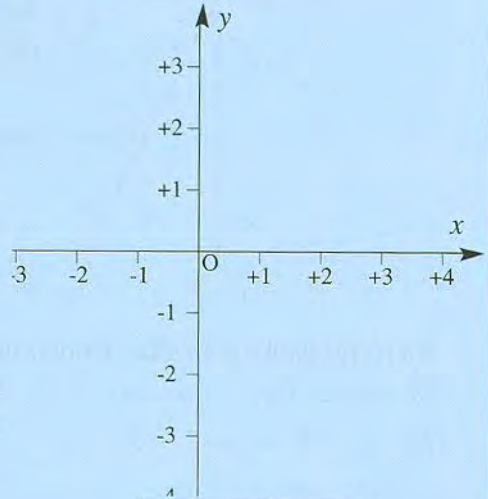
U furfur isle'eg kasta y

$$y + 2x = -5$$

$$y = -5 - 2x$$

$$y - 3x = 5$$

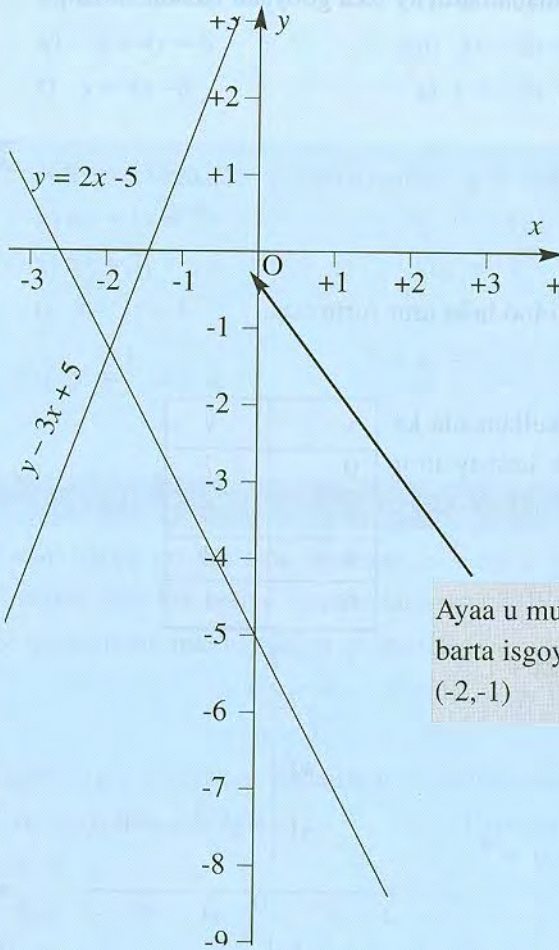
$$y = 5 + 3x$$



x	y
1	-7
0	-5
-1	-3

x	y
1	8
0	5
-1	2

Sawir garaafyada



Hubi barta isgoyska adiga oo ku beddelaya labada isle'eg .

hubinta 1

hubinta 2

$$\text{Dh. B} = y + 2x$$

$$\text{Dh. B} = y - 3x$$

$$= (-1) + 2(-2)$$

$$= (-1) - 3(-2)$$

$$= -1 - 4$$

$$= -1 + 6$$

$$= -5$$

$$= 5$$

$$\text{Dh. M} = -5$$

$$\text{Dh. M} = 5$$

$$\text{Dh. B} = \text{Dh. M}$$

Urur furfurista waa $(-2, -1)$.

Ku furfur habka garaafka . Hubi urur furfurista.

$$2x + 3y = -12 \text{-----(1)}$$

$$2x - y = -4 \text{-----(2)}$$

Xaaladdan waxa habboon in la adeegsado habka tikraarka si loo sawiro garaafyada isle'egyada.

$$2x + 3y = -12, \text{ marka } x = 0, y = -4$$

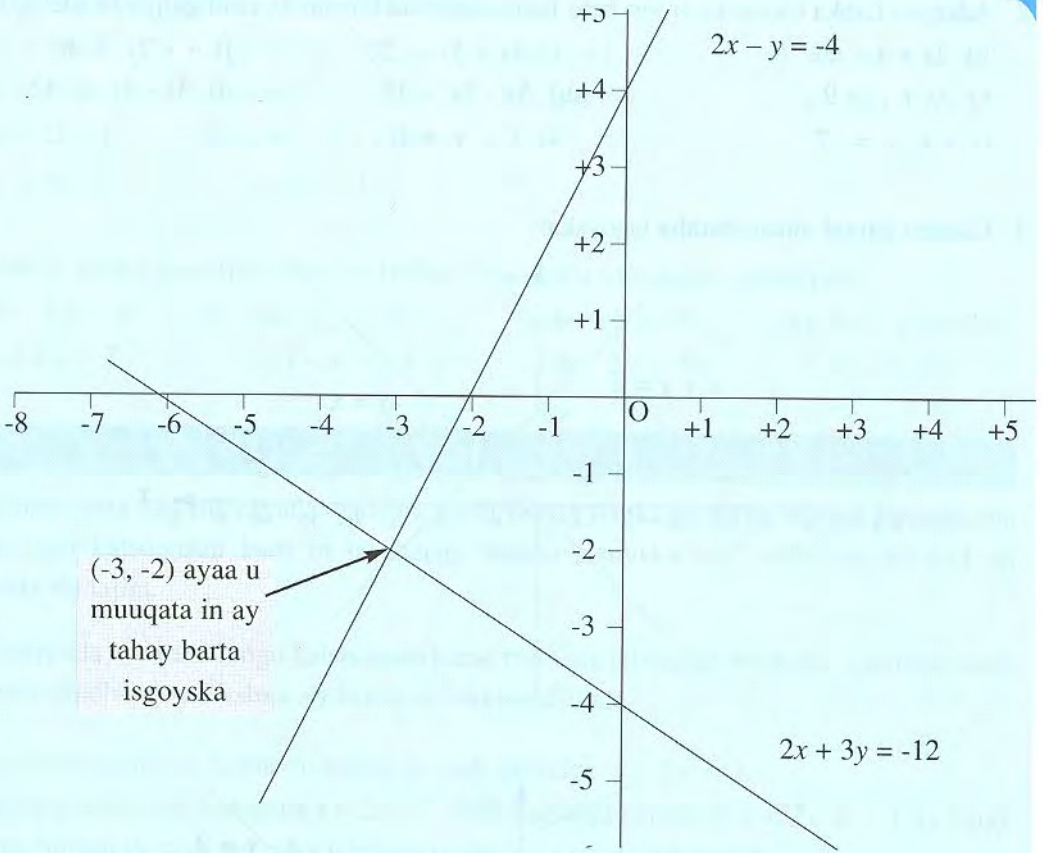
$$\text{oo marka } y = 0, x = -6$$

Labada lammaane horsan waa $(0, -4)$ iyo $(-6, 0)$.

$$2x - y = -4, \text{ marka } x = 0, y = 4$$

$$\text{oo marka } y = 0, x = -2$$

Labada lammaane horsan waa $(0, 4)$ iyo $(-2, 0)$.



Hubi barta isgoyska adiga oo ku beddelaya labada isle'eg

hubinta 1

hubinta 2

$$\text{dh.B} = 2y + 3x$$

$$\text{dh.B} = 2x - y$$

$$= 2(-3) + 3(-2)$$

$$= 2(-3) - (-2)$$

$$= -6 - 6$$

$$= -6 + 2$$

$$= -12$$

$$= -4$$

$$\text{dh.M} = -12$$

$$\text{dh.m} = -4$$

$$\text{dh.B} = \text{dh.M}$$

Urur furfurista waa $(-3, -2)$.

Layli 4

1. Sheeg saddex lammaane horsan ee raali gelinaya isle'eg kasta, iyada oo $0 \leq x \leq 2$

b) $y = x + 3$

t) $y = 2x - 1$

j) $y = 3x + 1$

x) $y = 2 - x$

kh) $y = -x + 4$

d) $y = -2x - 1$

r) $y = 4x + 2$

s) $y = 3x$

2. Adeegso habka tikraarka si loo helo lammaanayaal horsan ee raali gelinaya isle'eg kasta.

b) $2x + 3y = 6$

t) $4x + 5y = 20$

j) $x + 2y = 8$

x) $3x + y = 9$

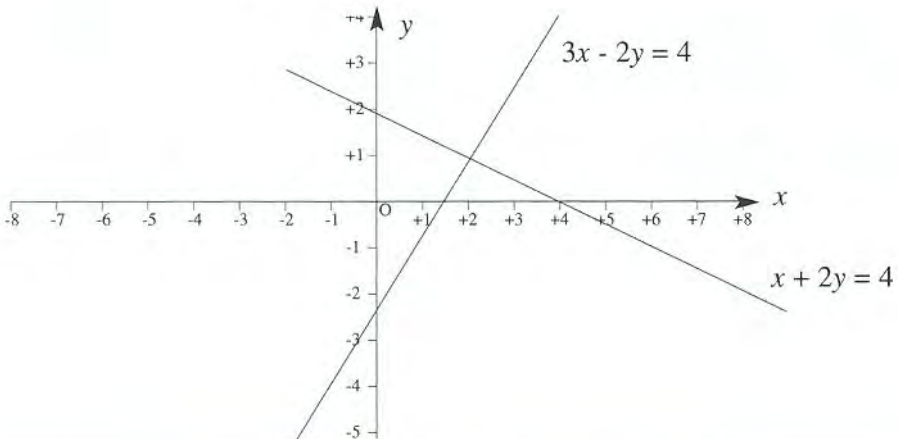
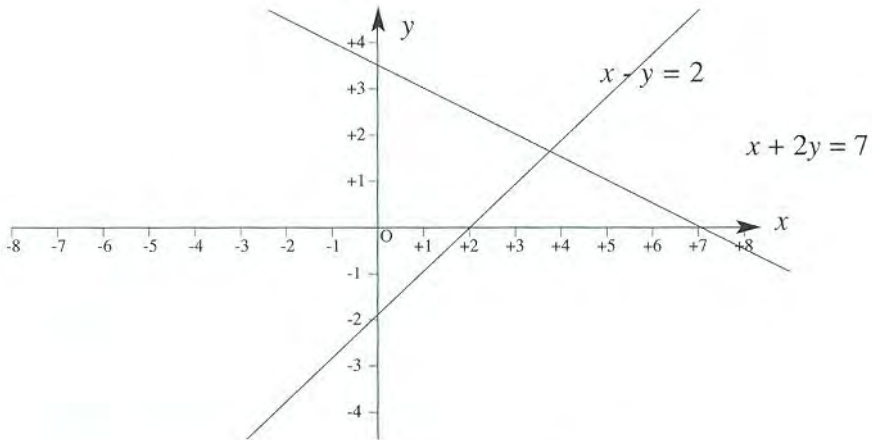
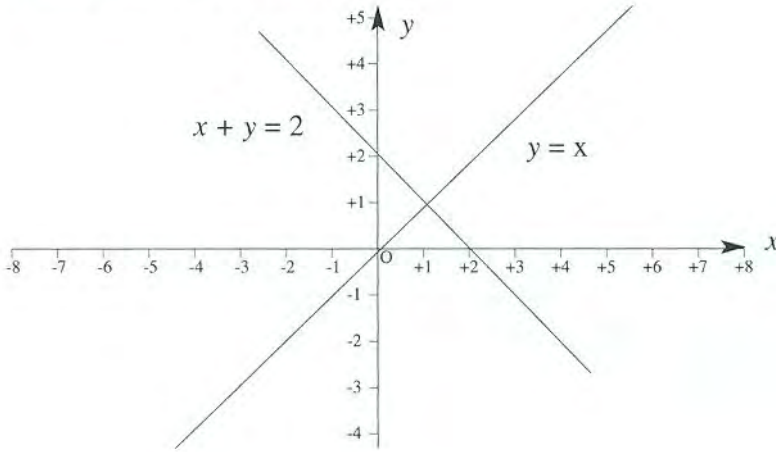
kh) $5x - 3y = 15$

d) $3x - 4y = -12$

r) $x + y = 7$

s) $x - y = 4$

3. Caddee garaaf ahaan baraha isgoyska:



4. Ku furfur habka garaafka . Hubi furfurista.

b) $y = x + 2$

t) $y = 2x - 1$

j) $y = 1 - 2x$

x) $y = x + 8$

$y = 4 - x$

$y = 8 - x$

$y = x + 7$

$y - 3x$

kh) $y = 2x - 1$

d) $y = -3x + 10$

$y = 4x - 3$

$y = 2x + 5$

5. Ku furfur habka garaafka. Adeegso habka tikraarka si loo sawiro garaafyada.

b) $x - y = -4$

t) $3x - 2y = 12$

j) $2x + y = 12$

x) $5x - 2y = 16$

$x + 2y = 2$

$2y - x = -8$

$3x - 2y = 18$

$x + 2y = 2$

Habka ALJEBRADA: ISKUBEDDELIDDA

Qaybtii hore waxa aan isle'egyada wadajira ku furfurnay habka garaafka. Habka garaafka ma aha hab lagu kalsoonaan karo in la sheego baraha isgoyska mid walba oo ka mid ah isle'egyada wadajira.

Habka aljebrada ayaa aad loogu kalsoonaan karaa furfuista isle'eyada wadajira. Qaybtan waxa aan ku soo bandhigaynaa habka aljebrada ee iskubeddelidda.

Waxa jira lammaanayaal horan oo badan ee raali gelinaya $y - 2x = 7$.

U furfurista y, waxa aan helaynaa $y = 2x + 7$. Waa caddeyn karnaa in $(x, 2x + 7)$ ay tahay lammaane horsan ee raali gelinaya isle'egta iyada oo la iskubeddelanayo .

Dh . B = $y - 2x$

Dh.M = 7

$= (2x + 7) - 2x$

$= 2x + 7 - 2x$

$= 7$

Waxa aan adeegsanaynaa tan si aan u furfurno habka.

Tusaalooyin:

(i) Furfur $y - 2x = 7$ -----(1)

$y + x = 4$ -----(2)

Waxa aan ognahay $(x, 2x + 7)$ ay raali gelinayso isle'egta (1). Barta isgoyska ee labada xarriiq, $(x, 2x + 7)$ waa in ay raali gelisaa (2)

$y + x = 4$

$(2x + 7) + x = 4$

$2x + 7 + x = 4$

$3x + 7 = 4$

$3x = 4 - 7$

$$3x = -3$$

$$x = -1$$

waxa aan (1) ka haysanaa

$$y = 2x + 7$$

$$= 2(-1) + 7$$

$$= -2 + 7$$

$$= 5$$

Urur furfurista waa $(-1, 5)$

(ii) Ku furfur iskubeddelid

$$2x + y = 6 \text{ ----- (1)}$$

$$3x - 2y = 2 \text{ ----- (2)}$$

min (1)

$$2x + y = 6$$

$$y = 6 - 2x$$

ku beddel (2)

$$3x - 2y = 2$$

$$3x - 2(6 - 2x) = 2$$

$$3x - 12 + 4x = 2$$

$$7x = 14$$

$$x = 2$$

ku beddel $x = 2$ isleegta (1)

$$2x + y = 6$$

$$2(2) + y = 6$$

$$4 + y = 6$$

$$y = 2$$

Hubi (1)

$$\text{Dh.B} = 2x + y$$

$$= 2(2) + 2$$

$$= 4 + 2$$

$$= 6$$

Dh.M = 6

Urur furfurista waa $(2, 2)$.

Hubi (2)

$$\text{Dh.B} = 3x - 2y$$

$$= 3(2) - 2(2)$$

$$= 6 - 4$$

$$= 2$$

Dh.M = 2

Layli 5

1. Ku furfur iskubeddelid

$$\begin{aligned} \text{b) } 2x + y &= 7 \\ 3x + 2y &= 10 \end{aligned}$$

$$\begin{aligned} \text{t) } 3x + y &= 2 \\ 5x + 2y &= 2 \end{aligned}$$

$$\begin{aligned} \text{j) } x + 4y &= 3 \\ 2x + 5y &= 3 \end{aligned}$$

$$\begin{aligned} \text{x) } x - 2y &= 4 \\ 2x - 3y &= 7 \end{aligned}$$

$$\begin{aligned} \text{kh) } x - 2y &= 3 \\ 5x + 4y &= 8 \end{aligned}$$

$$\begin{aligned} \text{d) } 2a + b &= 2 \\ 3a - 2b &= 3 \end{aligned}$$

$$\begin{aligned} \text{r) } m + 3n &= 2 \\ 3m - 6n &= 1 \end{aligned}$$

$$\begin{aligned} \text{s) } x + 2y &= 4 \\ 2x - 6y &= 3 \end{aligned}$$

2. Ku furfur iskubeddelid

$$\begin{aligned} \text{b) } 3x + 4y &= 9 \\ 5x - 8y &= 4 \end{aligned}$$

$$\begin{aligned} \text{t) } 5x + 4y &= 5 \\ 3x - 2y &= 3 \end{aligned}$$

$$\begin{aligned} \text{j) } 2x + 5y &= 6 \\ 4x + 15y &= -8 \end{aligned}$$

$$\begin{aligned} \text{x) } 2a + 3b &= 3 \\ 10a + 6b &= -3 \end{aligned}$$

$$\begin{aligned} \text{kh) } 3m - 2n &= 5 \\ 4m + 14n &= 15 \end{aligned}$$

$$\begin{aligned} \text{d) } 3x + 2y &= 12 \\ 2x + 3y &= 13 \end{aligned}$$

$$\begin{aligned} \text{(r) } 5a - 8b &= 8 \\ 10a + 4b &= 1 \end{aligned}$$

$$\begin{aligned} \text{(s) } 3m - 4n - 10 &= 0 \\ 5m - 12n - 6 &= 0 \end{aligned}$$

Habka isugeynta ama kalagoynta

Habka kale ee lagu furfuro isleegyada wadayira waa adiga oo adeegsada isugeyn ama kalagoynta.

Tusaalooyin:

(i) Furfur

$$x + y = 9 \text{ -----(1)}$$

$$\underline{x - y = 3 \text{ -----(2)}}$$

$$2x = 12 \text{ isugee}$$

ku beddelo isle'egta (1)

$$x + y = 9$$

$$6 + y = 9$$

$$y = 9 - 6$$

$$y = 3$$

Urur furfurista waa (6,3)

Hubin(1)

$$\text{Dh .B} = x + y$$

$$= 6 + 3$$

$$= 9$$

Hubin (2)

$$\text{Dh . B} = x - y$$

$$= 6 - 3$$

$$= 3$$

Tusaalooyin:

(ii) Furfur $x + 5y = 4$ -----(1)

$x + 3y = 2$ -----(2)

Isugeynta ma bixinayso hal doorsoome. Kalagoynta waa bixinaysa

$x + 5y = 4$

$x + 3y = 2$

$$\frac{2y}{2} = 2$$

$y = 1$

Kubeddelo isleegta (1)

$x + 5y = 4$

$x + 5(1) = 4$

$x + 5 = 4$

$x = -1$

Urur furfurista waa $(-1, 1)$

Hubi (1)

$Dh .B = x + 5y$

$= -1 + 5(1)$

$= -1 + 5$

$= 4$

Hubi (2)

$Dh . B = x + 3y$

$= -1 + 3(1)$

$= -1 + 3$

$= 2$

(iii) Furfur $3x + 2y = 34$ -----(1)

$5x - 3y = -13$ -----(2)

Haddii isle'egyada lagu dhaafo qaabka ay hadda yihiin isugeyn ama kalagoynta midna ma bixinayso hal doorsoome. Bixin hal doorsoome ma dhici karto ilaa tibxaha x ama tibxaha y ay isu mid noqdaan ama lid isku noqdaan . Si aan u gaarno arintaas waxa aan tiro isleeg ku dhufanaynaa labada dhinac ee isle'egta

Habka 1aadBixinta y

(1) $3x + 2y = 34$ 1

(2) $5x - 3y = -13$

(1) $x^3 \quad 9x + 6y = 102$

(2) $x^2 \quad 10x - 6y = -26$

Isugee $19x = 76$

$x = 4$

ku beddelo (1)

$3x + 2y = 34$

$3(4) + 2y = 34$

$12 + 2y = 34$

$2y = 22$

$y = 11$

Habka 2aadBixinta x

(1) $3x + 2y = 34$

(2) $5x - 3y = -13$

(1) $x^5 \quad 15x + 10y = 170$

(2) $x^3 + 5x + 9y = 3$

Kalagoo $19y = 209$

$y = 11$

ku beddelo (2)

$5x - 3y = -13$

$5x - 3(11) = -13$

$5x - 33 = -13$

$5x = 20$

$x = 4$

Hubi (2)

$$\begin{aligned} \text{Dh.M} &= 5x - 3y \\ &= 5(4) - 3(11) \\ &= 20 - 33 \\ &= -13 \\ \text{Dh.M} &= -13 \end{aligned}$$

Hubi (1)

$$\begin{aligned} \text{Dh. M} &= 3x + 2y \\ &= 3(4) + 2(11) \\ &= 12 + 22 \\ &= 34 \\ \text{Dh. M} &= 34 \end{aligned}$$

Urur furfurista waa (4,1).

Layli 6

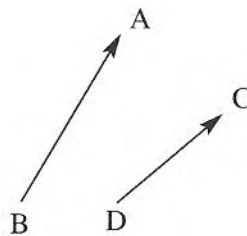
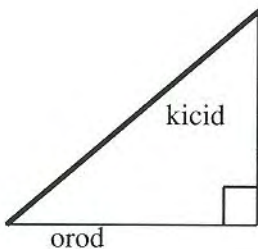
Furfur oo hubi furfurista

b) $x + y = 8$	t) $3x + 2y = 2$	j) $x + 3y = 10$	x) $x - 3y = 1$
$x - y = -2$	$x - 2y = 2$	$3x + y = 16$	$3x - 2y = 17$
kh) $8x + 3y = -14$	d) $6x - 2y = 1$	r) $4x - 2y = 12$	s) $10 = 3x - 4y$
$7y - 12x = 21$	$9x - 4y = 4$	$3x + 2y = 9$	$5x - 12y = 6$
sh) $3x = 4y + 5$	dh) $m - 2n = 3$	c) $2a + b = 10$	l) $5m + 2n - 5 = 0$
$5x + 3y + 11 = 0$	$2m - 3n = 4$	$3a - 2b = 8$	$2m + 3n - 13 = 0$

Tiiro

Tiirada xarriiq Waa cabbiraadda inta ay janjeersan tahay xarriiqdu. Tiirada xarriiq waxa loo qeexaa qaybta isbeddelka joogga (oo la yiraahdo kicid) oo loo qaybiyay isbeddelka jiifka (oo la yiraahdo orod)

$$\text{Tiiro} = \frac{\text{kicid}}{\text{orad}} = \frac{\text{isbeddelka joogga}}{\text{isbeddelka jiifka}}$$



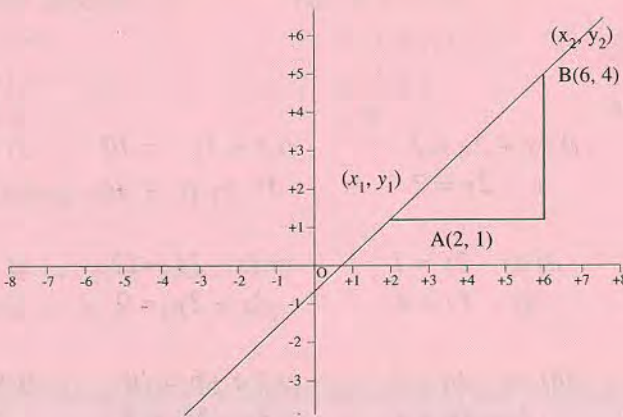
AB waxa ay leedahay tiiro (ama janjeer) ka weyn CD

Tusaalooyin:

(i) Xisaabi tiirada xarriiqda marta A(2,1) iyo B(6,4).

Isbeddelka joogga ama kicidda waa 3 (faraqa dhidibka - y). Isbeddelka jiiifka ama orodka waa 4 (faraqa dhidibka - x).

$$\begin{aligned} \text{Tiiro} &= \frac{\text{kicidda ee AB}}{\text{orodka ee AB}} \\ &= \frac{3}{4} \end{aligned}$$



Kicidda waa isbeddelka joogga ama faraqa dhidibka-y waana $y_2 - y_1$.

Si la mid ah orodka waa isbeddelka jiiifka ama faraqa dhidibka-x waana $x_2 - x_1$.

Xarafka T waxa loo adeegsadaa in loo soo gaabiyo Tiiro.

$$\begin{aligned} \text{Tiiro} &= \frac{\text{kicid}}{\text{orad}} = \frac{\text{isbeddelka joogga}}{\text{isbeddelka jiiifka}} \\ T &= \frac{y_2 - y_1}{x_2 - x_1} \end{aligned}$$

(ii) Xisaabi tiirada xarriiqda isku xirta A(3 -2) ilaa B(6,5)

$$T_{AB} = \frac{y_2 - y_1}{x_2 - x_1}$$

$$T_{AB} = \frac{5 - (-2)}{6 - 3} = \frac{7}{3}$$

ama

$$T_{BA} = \frac{y_1 - y_2}{x_1 - x_2} = \frac{-2 - 5}{3 - 6} = \frac{-7}{-3} = \frac{7}{3}$$

Tiirada AB waxa ay la mid tahay tiirada BA

(iii) Xisaabi tiirada xarriiqda marta A(4,-2) iyo B(-5 , 6)

$$T_{AB} = \frac{y_2 - y_1}{x_2 - x_1} = \frac{6 - (-2)}{-5 - 4} = \frac{8}{-9} = -\frac{8}{9}$$

Layli 8

1. Si dhammeystiran u isiri halka ay suurogal tahay:

b) $2x + 14$

t) $6y - 12$

j) $5x - 10y$

x) $9m - 18$

kh) $2x^2 - 6x$

d) $4ab + 6bx - 16bn$

r) $9xst - 15yxs + 6wsx$

s) $25x^3 + 10x^2 + 15x$

sh) $y^5 - y^4 + y^3 + y^2$

dh) $36x^5 - 9x^3$

c) $12xy + 4wx - 6xz$

g) $36mn^2 - 24m^2n + 28mn$

f) $3n(x + y) - 2(x + y)$

q) $9x(m + 3) + 3(m + 3)$

k) $6mn(u - 5) - (u - 5)$

Isireynta $ax^2 + bx + c$, $a = 1$

Tibxaalayaal badan sida $x^2 + 7x + 12$, ayaa loo qori karaa taranka labo tibxaale kale ahaan oo leh sansaanka $(x + r)$ iyo $(x + s)$.

$$\begin{array}{ccc} \text{—————} & \text{Fidin} & \text{—————} \\ & \longrightarrow & \\ & x^2 + 7x + 12 = (x + 3)(x + 4) & \\ & \longleftarrow & \\ \text{—————} & \text{isirayn} & \text{—————} \end{array}$$

Fahamka guud ee fidinta labo tibxaale oo toosan waxa ay fududeynayaan isireynta.

$$\begin{aligned} (x + r)(x + s) &= x^2 + sx + rx + rs \\ &= x^2 + (s + r)x + rs \\ &= x^2 + bx + c \end{aligned}$$

Halkan, $b = s + r$ iyo $c = rs$

loogu qoro $x^2 + 8x + 15$ sansaanka $(x + r)(x + s)$.

$$\begin{aligned} b = s + r & \text{ iyo } c = rs \\ = 8 & = 15 \end{aligned}$$

Raadi

labo tiro oo wadartoodu tahay 8 oo tarankooduna yahay 15

Haddaba $r = 3$, $s = 5$ oo isirada $x^2 + 8x + 15$ waa $(x + 3)(x + 5)$.

Tusaalooyin:

(i) Isiree $x^2 - 3x - 10$

Iyada oo $x^2 - 3x - 10$,

$r + s = -3$ iyo $rs = -10$

Laba tiro oo la isu geeyay si loo halo -3 isla markaasna la isku dhuftay si loo helo -10

Waa -5 iyo $+2$.

$x^2 - 3x - 10 = (x - 5)(x + 2)$

Layli 9

1. Dhammeystir isireynta.

b) $x^2 + 9x + 20 = (x + 5)(\quad)$

t) $x^2 - x - 24 = (x + 6)(\quad)$

j) $m^2 - 3m - 18 = (\quad)(m - 6)$

x) $t^2 - 2t - 24 = (t - 6)(\quad)$

kh) $s^2 - 8m + 16 = (\quad)(m - 4)$

d) $n^2 + 3m - 40 = (\quad)(n + 8)$

2. Isiree, haddii ay suuragal tahay:

b) $x^2 + 11x + 18$

t) $y^2 + 2y - 18$

j) $x^2 + 18x + 90$

x) $x^2 + 4x + 4$

kh) $m^2 - 8m - 20$

d) $y^2 - 6y + 9$

r) $w^2 - 7w + 12$

s) $n^2 + 10n + 25$

sh) $t^2 + 17t + 72$

Isiraynta $ax^2 + bx + c$, $a \neq 1$

Isireynta sida tibxaalaha $6x^2 + 17x + 12$, waa la fududeeyay haddii aan u kala bixino tibixda dhexe labo qaybood

$$\begin{aligned} 6x^2 + 17x + 12 &= 6x^2 + 9x + 8x + 12 \\ &= (6x^2 + 9x) + (8x + 12) \\ &= 3x(2x + 3) + 4(2x + 3) \\ &= (2x + 3)(3x + 4) \end{aligned}$$

$9x + 8x$ ayaa lagu beddelay $17x$ maxa yeelay $9 + 8 = 17$ oo $9 \times 8 = 72$ - oo la mid ah taranka wehliyaha tibixda x^2 iyo ma doorsoomaha (6×12). Si loo kala bixiyo tibixda dhexe oo looga dhigo isireyn suuragal ah, labo tiro waa in la helo kuwaas oo marka :

- La isugeeyo le'eg wehliyaha tibixda x ;
- La isku dhuftana le'eg taranka wehliyaha tibixda x^2 iyo tibixda madoorsoomaha .

Tusaalooyin:

(i) Isiree: $6x^2 + 7x + 2$

Labadee tiro:

- isugeyntoodu le'eg tahay (+7), wehliyaha tibixda x ;
- isku dhufashoodu le'eg tahay (+12), taranka wehliyaha tibixda x^2 (+6) iyo tibixda madoorsoomaha(+2)?

Labada tiro waa (+3) iyo (+4) madaama $3 + 4 = 7$ oo $3 \times 4 = 12$.

$$\begin{aligned} 6x^2 + 7x + 2 &= 6x^2 + 3x + 4x + 2 \\ &= (6x^2 + 3x) + (4x + 2) \\ &= 3x(2x + 1) + 2(2x + 1) \\ &= (2x + 1)(3x + 2) \end{aligned}$$

Layli 10

1. Sheeg labo tiro marka :

- la isku geeyo ku siinaysa tirada hore;
- la isku dhufto ku siinaysa tirada labaad.

b) [7, 10]

t) [5, 6]

j) [-7, +12]

x) [-2, -15]

kh) [9, 18]

d) [-8, +16]

r) [7, -30]

s) [-1, +20]

sh) [+13, +30]

2. Isiree :

b) $6x^2 - 13x + 6$

t) $2y^2 - y - 10$

j) $4s^2 + 27s + 18$

x) $4t^2 + 21t - 18$

kh) $4b^2 + 31b + 21$

d) $3k^2 - 23k + 25$

r) $2x^2 + 5x + 3$

s) $10n^2 + 29n + 10$

sh) $6a^2 - 17s - 18$

dh) $6y^2 - 7y + 2$

c) $9r^2 + 6r + 1$

Isireynta saableyada gaarka ah

Waxa aan adeegsanayna midaalada soo socda si loo isireeyo saableyada gaarka ah

$$\left. \begin{aligned} a^2 + 2ab + b^2 &= (a + b)(a + b) = (a + b)^2 \\ a^2 - 2ab + b^2 &= (a + b)(a - b) = (a - b)^2 \end{aligned} \right\} \text{ labajibbaar dhammaystiran}$$

$$a^2 - b^2 = (a - b)(a + b) \left. \right\} \text{ Faraqa labajibbaarada}$$

Tusaalooyin:

(i) Isiree : $9x^2 + 30x + 25$

$9x^2 + 30x + 25$ waa saddex tibxaale labajibbaar dhammaystiran

$$\begin{aligned} 9x^2 + 30x + 25 &= (3x)^2 + 2(3x)(5) + (5)^2 \\ &= (3x + 5)(3x + 5) \\ &= (3x + 5)^2 \end{aligned}$$

(ii) Isiree : $4x^2 - 12x + 9$ (Waa saddex tibxaale labajibbaar dhammaystiran)

$$\begin{aligned} &= (2x)^2 - 2(2x)(3) + (3)^2 \\ &= (2x - 3)(2x - 3) \\ &= (2x - 3)^2 \end{aligned}$$

(iii) Isiree : $16x^2 - 49$

$16x^2 - 49$ waa faraqa laba labajibbaar.

$$\begin{aligned} 16x^2 - 49 &= (4x)^2 - (7)^2 \\ &= (4x - 7)(4x + 7) \end{aligned}$$

Layli 11

1. Isiree :

b) $36x^2 - 9$

t) $x^2 + 14x + 49$

j) $x^2 + 14x + 49$

x) $4m^2 + 8m - 60$

kh) $6x^2 + 8x + 1$

d) $y^2 - 2y + 1$

r) $r^2 - 6r + 9$

s) $8x^2 + 34x + 35$

sh) $100x^2 - 49$

dh) $8 - 18x^2$

c) $y^2 - 2y + 1$

g) $6y^2 - 11y - 10$

f) $15y^2 - 22y + 8$

q) $2(x + y)^2 - 6(x + y)$

k) $2y^2 - 2y - 24$

Furfurista isle'egta saabley

Ku furfuridda isirinta

Isle'egta loo qori karo saansaanka $ax^2 + bx + c = 0$, $a \neq 0$ halka a , b iyo c ay yihiin abyoonyal ayaa lagu magacaabaa isle'eg saabley .

Iyada oo la adeegsanayo xeeladaha isirinta waxa la furfuri karaa isle'egta saabley. Habkan waxa uu ku salaysan yahay astaanta taranka eber.

Dhamman tirooyinka a iyo b , Haddii $ab = 0$ markaa $a = 0$ ama $b = 0$

Tusaalooyin:

(i) furfur : $2x^2 - 6x = 0$

$2x$ waa isirka ay wadagaan $2x^2$ iyo $6x$ $2x^2 - 6x = 0$

$$2x(x) - 2x(3) = 0$$

$$2x(x - 3) = 0$$

Iyada oo la adeegsanayo astaanta taranka - Eber

$$2x = 0 \text{ ama } x - 3 = 0$$

$$x = 0 \text{ ama } x = 3$$

Urur furfurista waa $\{0, 3\}$

(ii) furfur: $x^2 + 5x + 6 = 0$

Isiree dhanka bidix

Raadi labo tiro oo wadartoodu tahay 5 oo tarankoodu yahay 6

Labada tiro waa 2 iyo 3.

$$(x + 2)(x + 3) = 0$$

$$x + 2 = 0 \text{ ama } x + 3 = 0$$

$$x = -2 \text{ ama } x = -3$$

Urur furfurista waa $\{-2, -3\}$

(iii) Furfur: $x^2 - 5x + 6 = 0$

$$x^2 - 5x + 6 = 0$$

$$(x - 2)(x - 3) = 0$$

$$x - 2 = 0 \text{ ama } x - 3 = 0$$

$$x = 2 \text{ ama } x = 3$$

Urur furfurista waa $\{2, 3\}$

(iv) Furfur: $y^2 + y - 12 = 0$

$$(y + 4)(y - 3) = 0$$

$$y + 4 = 0 \text{ ama } y - 3 = 0$$

$$y = -4 \text{ ama } y = 3$$

Urur furfurista waa $\{-4, 3\}$

(v) Furfur: $(2x - 3)(x + 5) = 0$

Iyada oo la adeegsanayo astaanta taranka - Eber

$$2x - 3 = 0 \text{ ama } x + 5 = 0$$

$$2x = 3 \text{ ama } x = -5$$

$$x = \frac{3}{2} \text{ ama } x = -5$$

Urur furfurista waa $\{ \frac{3}{2}, -5 \}$

(vi) Furfur $3x^2 + x - 4 = 0$

Isiree dhanka bidix

Taranka wehliyaha x^2 iyo madoorsoomaha waa $3(-4) = -12$

Wehliyaha x waa 1

Raadi labo tiro oo tarankoodu yahay -12 oo wadartoodu tahay 1.

$$4x(-3) = -12$$

$$4 + (-3) = 1$$

$$3x^2 + x - 4 = 0$$

$$3x^2 - 3x + 4x - 4 = 0$$

$$(3x^2 - 3x) + (4x - 4) = 0$$

$$3x(x - 1) + 4(x - 1) = 0$$

$$(x - 1)(3x + 4) = 0$$

$$x - 1 = 0 \text{ ama } 3x + 4 = 0$$

$$x = 1 \text{ ama } 3x = -4$$

$$x = 1 \text{ ama } x = -\frac{4}{3}$$

Urur furfurista waa $\{ 1, -\frac{4}{3} \}$

Layli 12

1. Furfur:

b) $x^2 - 36 = 0$

t) $2a^2 - 8a = 0$

j) $4x^2 - 9 = 0$

x) $4x^2 - 64 = 0$

kh) $y^2 - 81 = 0$

d) $a^3 - a = 0$

2. Furfur:

b) $x^2 + 6x + 5 = 0$

t) $x^2 + 7x + 6 = 0$

j) $x^2 + 15x + 44 = 0$

x) $x^2 - 13x + 22 = 0$

kh) $x^2 - 17x + 50 = 0$

d) $x^2 - 13x + 42 = 0$

r) $x^2 + 4x - 5 = 0$

sh) $x^2 + 2x - 15 = 0$

s) $x^2 + 16x - 28 = 0$

i) $x^2 - 11x - 10 = 0$

j) $x^2 - 5x - 6 = 0$

k) $x^2 - 4x - 21 = 0$

3. Furfur:

b) $5x^2 + 6x + 1 = 0$

t) $8x^2 + 6x + 1 = 0$

j) $2x^2 + 7x + 3 = 0$

x) $4x^2 - 12x + 4 = 0$

kh) $6x^2 - 7x + 2 = 0$

d) $x^2 - 16x + 3 = 0$

r) $3x^2 + 2x - 1 = 0$

sh) $5x^2 + x - 77 = 0$

s) $3x^2 + 4x - 7 = 0$

Ku furfurista isle'egta saabley jidka saableyda

Sansaanka guud ee isle'egta saabley waa:

$ax^2 + bx + c = 0$ oo a,b iyo c ay yihiin madoorsoome. Isle'egta sansaankan leh waxa lagu furfuri karaa Jidka.

$$x = \frac{b \pm \sqrt{b^2 - 4ac}}{2a}$$

Tusaalooyin:

(i) Furfur, $x^2 + x - 6 = 0$

$a = 1, b = 1, c = -6$

Iyada oo lagu beddelaayo

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$x = \frac{-1 \pm \sqrt{1^2 - 4 \times 1 \times (-6)}}{2 \times 1}$$

$$x = \frac{-1 \pm \sqrt{1 + 24}}{2}$$

$$x = \frac{-1 \pm \sqrt{25}}{2}$$

$$x = \frac{-1 + \sqrt{25}}{2} \quad \text{ama} \quad x = \frac{-1 - \sqrt{25}}{2}$$

$$x = \frac{-1 + 5}{2} \quad \text{ama} \quad x = \frac{-1 - 5}{2}$$

$$x = \frac{4}{2} \quad \text{ama} \quad \frac{-6}{2}$$

$$x = 2 \quad \text{ama} \quad -3$$

Furfurista isle'egta saabley $x^2 + x - 6 = 0$ waa laba; waayo x^2 waa tiro laba jibbaaran. Si loo hubiyo in ama ay yihiin furfurista isleegta saabley $x^2 + x - 6$, waxa aan qiimayaasha ku beddelanayna isle'egta .

Marka $x = 2$:

$$\begin{aligned} x^2 + x - 6 &= 2^2 + 2 - 6 \\ &= 4 + 2 - 6 \\ &= 6 - 6 \\ &= 0 \end{aligned}$$

$$\begin{aligned} \text{Marka } x = 3: x^2 + x - 6 &= (3)^2 + (3) - 6 \\ &= 9 - 3 - 6 \\ &= 9 - 9 \\ &= 0 \end{aligned}$$

Labada qiime waa raali gelinayan isle'egta . Sida awgeed iyaga waa furfurista keliya ee isle'egta $x^2 + x - 6 = 0$.

(ii) Furfur $2x^2 + 7x - 15 = 0$, halka

$$a = 2, b = 7, c = -15$$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$x = \frac{7 \pm \sqrt{7^2 - 4(2)(-15)}}{2(2)}$$

$$x = \frac{-7 \pm \sqrt{49 + 120}}{4}$$

$$x = \frac{-7 \pm \sqrt{169}}{4} = \frac{-7 \pm 13}{4}$$

$$x = \frac{-20}{4} = -5 \quad \text{ama} \quad x = \frac{+6}{4}$$

$$x = +1.5$$

$$\therefore x = -5 \quad \text{ama} \quad x = 1.5$$

(iii) Furfur $x^2 - 7x + 12 = 0$, halka

$$a = 1, b = -7, c = 12$$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$x = \frac{-7(-7) \pm \sqrt{(-7)^2 - 4 \times 1 \times 12}}{2 \times 1}$$

$$x = \frac{7 \pm \sqrt{49 - 48}}{2}$$

$$x = \frac{b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$x = \frac{7 \pm \sqrt{1}}{2} \quad \text{ama} \quad x = \frac{7 \pm 1}{2}$$

$$x = \frac{7+1}{2} \quad \text{ama} \quad \frac{7-1}{2}$$

$$x = \frac{8}{2} \quad \text{ama} \quad \frac{6}{2}$$

$$x = 4 \quad \text{ama} \quad 3$$

(iv) Furfur $6x^2 + 19x + 10 = 0$

halka, $a = 6$, $b = 19$, $c = 10$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$x = \frac{-19 \pm \sqrt{(19)^2 - 4 \times 6 \times 10}}{2 \times 6}$$

$$x = \frac{-19 \pm \sqrt{361 - 240}}{12}$$

$$x = \frac{-19 \pm \sqrt{221}}{12}$$

$$x = \frac{-19 \pm \sqrt{11}}{12}$$

$$x = \frac{-19 + 11}{12} \text{ ama } \frac{-19 - 11}{12}$$

$$x = -\frac{8}{12} \text{ ama } \frac{-30}{12}$$

$$x = -\frac{2}{3} \text{ ama } -2\frac{1}{2}$$

(v) Furfur $12x^2 - 22x + 6 = 0$

halka, $a = 12$, $b = -22$, $c = 6$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$x = \frac{-(-22) \pm \sqrt{(-22)^2 - 4 \times 12 \times 6}}{2 \times 12}$$

$$x = \frac{22 \pm \sqrt{484 - 288}}{24}$$

$$x = \frac{22 \pm \sqrt{196}}{24}$$

$$x = \frac{22 \pm 14}{24}$$

$$x = \frac{22 + 14}{24} \quad \text{ama} \quad \frac{22 - 14}{24}$$

$$x = \frac{36}{24} \text{ ama } \frac{8}{24}$$

$$x = 1\frac{1}{2} \text{ ama } \frac{1}{3}$$

Layli 12

Furfur adiga oo adeegsanaya jidka:

b) $x^2 + 5x + 6 = 0$

x) $x^2 - 4x - 12 = 0$

r) $x^2 - 7x + 12 = 0$

dh) $2x^2 - 7x + 3 = 0$

f) $5x^2 + 11x + 6 = 0$

l) $y^2 - 9 = 0$

t) $x^2 + 6x + 8 = 0$

kh) $x^2 + 2x - 8 = 0$

s) $x^2 - 8x + 12 = 0$

c) $3x^2 - 5x + 2 = 0$

q) $7x^2 + 2x - 5 = 0$

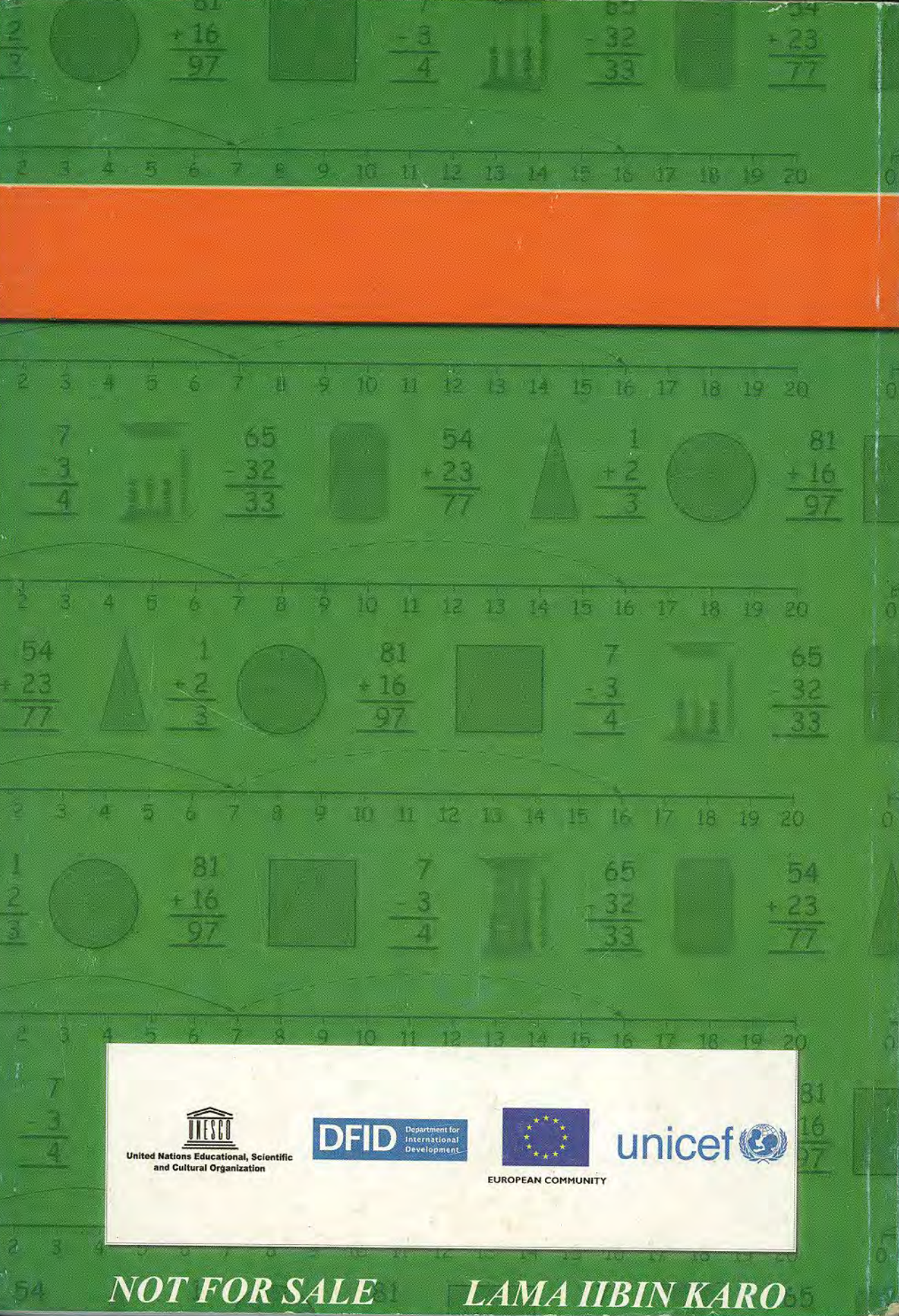
j) $x^2 - 2x - 15 = 0$

d) $x^2 + 4x - 12 = 0$

sh) $3x^2 + 7x + 2 = 0$

g) $5x^2 + 12x + 7 = 0$

k) $3y^2 + y - 10 = 0$



NOT FOR SALE

LAMA IIBIN KARO