XISAAB

BUUGGA ARDAYGA

Fasalka 5aad

ISBN 978-99944-2-192-3

JAMHURIYADA DIMOQRAADIGA FADARAALKA ITOOBIYA
WASAARADDA WAXBARASHADA

Birr 47.60

XISAAB BUUGGA ARDAYGA Fasalka 5aad

MOE

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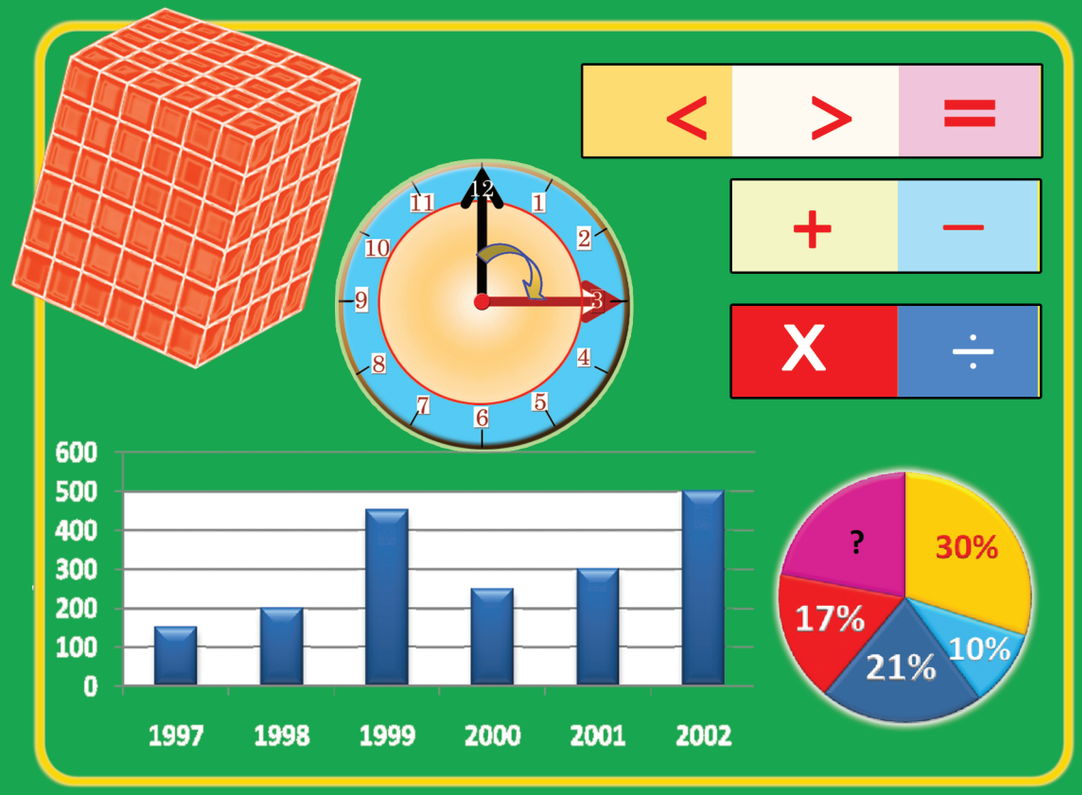
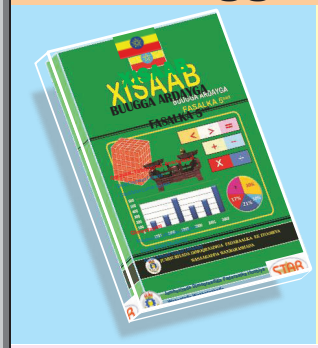
BUUGGA ARDAYGA

Fasalka 5aad



JAMHURIYADA DIMOQRAADIGA FADARAALKA ITOOBIYA
WASAARADDA WAXBARASHADA

Buuggan Ilaali oo daryeel



Buuggani waa hantida Dugsigiina

Daryeel si aynan waxyeelo u gaadhin ama u lumen Hoos waxa kuxusan 10 fikradood oo ah talooyin kaa caawinaya sidaad buugga u ilaa linaysid una daryeelaysid.

1. Buugga ku jaldiyee jaldi ku haboon dhawrista sida Balaastiga waraqad adag sida magaasinada la akhristoy.
2. Markasta meeshaad buuga dhigaysaa waa in ay ahaataa meel nadiif ah oo engagan.
3. Buugga marka aad isticmaalaysid waa in ay gacmahaagu nadiif ahaadaan.
4. Waxna ha ku qorin buugga jaldigiisa ama boggaga dhaxdiisa.
5. Isticmaal waraaqad yar ama kaardi yar markaad bog calaamadaysanaysid.
6. Waligaa ha ka jeexin ama haka gooynin sawir ama bog.
7. Boggaga jeexma ku kab. Xabag ama balastar.
8. Buugga markaad dugsiga u qaadanaysid boorsada ama shayga aad ku qaadanaysid qumaati u dhaxdhig si uunan u jacdadin ama u jajabin.
9. Buugga markaad qof kale u dhibaysid si taxadar leh ugu dhiib.
10. Buugga cusub marka ugu horeysa ee aad isticmaalkiisa bilaabaysid dhinicisa ay boggagiisa u dan beeya ay ku yaaliin u jiifi kadibna markiiba dhawr bog fur ama bannee. Marka aad bog rogaysid, Cidhifka uu ka taxan yahay gacanta kale ku yar xaji. sidaasina daryeelka jaldiga buugga ayey u wanaagsan tahay.

XISAAB

BUUGGA ARDAYGA

FASALKA 5^AAD

Qorayaal, Tafatirayaal, Ansixiyayaal

Sayid Cusmaan Cateeye

Cabdifatax Cumar Xuseen

Qiimeeyayaal

Maxamuud Cabdulahi Ibraahim

Khadar Budul Muxumed

Xasan Axmed Yuusuf (Muslim)

Jumhuriyada Dimoqraadiga Fadaraalka Itoobiya

Wasaarada Waxbarashada

Buugga waxa la daabacay 2002 E.C, Dajinta iyo soo saaridda buuggan waxa fuliyay wasaarada waxbarashada ee jumhuriyada Dimoqraadiga Federaalka Itoobiya mashruuca hoos yimaad ee uqaybsan kor u qoodista iyo horumarinta tayada waxbarashada Guud oo taageero ka helay hayada IDA Credit No. 4535 ET oo ah the Fast Track Initiative catalytic fund iyo dawladaha Finland, Italy, Netherland iyo United Kingdom.

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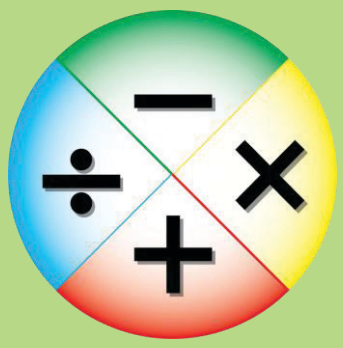
Cutubka 2

Cutubka 3

Cutubka 4

Cutubka 5

Cutubka 1aad



TIROOYINKA IDIL IYO AFARTA XISAABFAL

UJEEDDOOYINKA CUTUBKA

Dhamaadka cutubkani waxaad awoodi doontaan inaad

- *Akhridaan tirooyinka idil ee ka badan 1,000,000.*
- *Isbarbar dhigtaan oo aad isku habaysaan tirooyinka idil ee ka badan ama ka wayn 1,000,000.*
- *Sheegtaan ama garataan godka ka dambeeya iyo kii ka horeeyay tiro idil oo lagu siiyay (marka laga reebo eber).*
- *Garataan qiimo rugeedka god kasta ee tiro idil oo lagu siiyay.*
- *Kala garataan tirooyinka dhabanka ah iyo kuwa kisiga ah ee tirooyinka idil.*
- *Soo bandhigtaan adeegsiga isugaynta iyo kalagoynta.*
- *Garataan astaamaha aasaasiga ah ee isugaynta ee tirooyinka idil*
- *Xalisaan masalooyinka iskudhufashada ee tirooyinka idil.*
- *Garataan astaanta kala dhiga iskudhufashada ee isugaynta.*
- *U qaybisaan tirooyin idil, tiro idil oo kale oo aan eber ahayn.*

TUSMOOYINKA MUHIMKA AH

1.1 Tirooyinka idil ee ka badan 1,000,000.

1.2 Adeegsiga tirooyinka idil.

Erayada furaha ah

Soo koobida

Laylisyada guud

HORDHAC

Aduunyadan aynu maanta ku noolnahay ee cilmiga sayniska iyo farsamada casriga ah ay hore u martay, waxaynu ubaahanahay inaynu tibaaxno ama sheegno waxa ugu yar ama ugu wayn ee waxyaabaha inagu wareegsan, taasina waa sababaha aynu u baranayno tirooyinka.

Waxaad horay u soo baratay tirooyinka idil laga soo bilaabo 0 ilaa 1,000,000, iyo sida loogu adeegsado nolol-maalmeedka, sanadkana waxaad baran doontaan ood ka shaqayndoontaan tirooyinka Idil ee ka badan 1,000,000, sidaa darteed waad tibaaxi kartaa shay yada ugu wayn ee aad rabto.

Waxaa kalood arki doontaa calaamado badan oo la adeegsado iyo astaamaha tirooyinka aad ku soo aragtay fasalkii 4^{aad} ayaa loo adeegsan doonaa in lagu shaqeeyo tirooyinka ka badan 1,000,000. Sidaas darteed waxaa aad kuugu fiican inaad dib u jaleecdo buugii fasalka Afraad, ka hor intaanad u gudbin cutubyada cusub. Tani waxay kaa dhigaysaa inaad isku diyaariso safarka xiisaha leh ee aad ugu socoto xisaabta fasalka 5^{aad}, Nasiib Fiican.

1.1. TIROOYINKA IDIL EE KAWAYN 1,000,000

1.1.1 NAQTIIN TIROOYINKA IDIL ILAA IYO 1,000,000

Hawlgalka 1.1

1 Akhri tirooyinka soo socda oo mid walba erey ahaan ku qor.

b	234	**j**	1,111	**kh**	14,690	**r**	65673
t	231,112	**x**	6,429	**d**	990,901	**s**	100,003

2 Mid kastoo weedhahan soo socda ka mid ahba waxaad u qortaa tiro ahaan.

b Boqol iyo kow

t Kun iyo sideed boqol iyo todobaatan.

j Saddex boqol oo kun shan boqol iyo lix iyo sodon.

x Toban kun iyo todoba.

3 Tirooyinkan isku habee adoo ka bilaabaya ta ugu yar ilaa ta ugu wayn.

b 242,667 24,266 9,033.

t 567,980 34,789 169,875 458,700.

4 Qor da'da saaxiibadaa iyo magacyadooda adigoo ka bilaabaya ka ugu yar ilaa ka ugu wayn.

5 Naqil oo dhig calaamada ugu haboon (< ama >)meesha u dhaxaysa lamaane kasta oo tirooyinka soo socda ah:

b 456,780 ___ 456,098 **t** 638,561 ___ 638,516

j 10,022 ___ 10,122.

Tiro kasta oo tiro idil ah waxay leedahay hal ama in kabadan oo godad ah. God kastaba wuxuu buuxinayaa meel. Waxaynu akhrinaa tirooyinkaasi inagoo adeegsanayna qiimo rugeedka uu godkastaaba buuxiyo.

Qiimaha meesha uu god kastaaba buuxiyo ee tiro waxaa loo yaqaanaa qiimo rugeed.

Tusaale ahaan, 8976 waxaa loo akhriyaa 8 kun, 9 boqol iyo todobaatan iyo lix, tani macnaheedu waxa weeyi tirada 8976, ayaa waxa jira 8 kun, 9 boqol, 7 tobnaad iyo 6 kowaadyo. Sidaasi darteed qiima rugeedka 9 waa boqlaad, qiima rugeedka 7 waa tobnaad, qiima rugeedka 6 waa koowaad.

Shaxda 1, waxay ina tusaysaa qiimo rugeedyada tirooyinka ku jooga ilaa lix god. Godka ugu ahmiyada wayni ee tiradu waa midka leh qiimo rugeedka ugu wayn. Godka ugu ahmiyada wayn, waa god ugu bidixeeyaaa godka, ka ugu ahmiyada yarina waa godka ugu midigeeya.

Shaxda 1 **Qiimo rugeed**

100,000	10,000	1,000	100	10	1
Boqol kumaad	Toban kumaad	Kumaad	Boqlaad	Tobnaad	Kowaad
↑	↑	↑	↑	↑	↑
8	9	5	6	7	3
Waxaana loo akhriyaa siddeed boqol sagaashan iyo shan kun, lix boqol toddobaatan iyo saddex					

Tusaale 1: akhri kuwan soo socda oo u qor erayo ahaan.

b 51,676 **t** 195,673 **j** 345,999.

Furfuris:

b tirada 51,676 waxaa loo akhriyaa konton iyo kow kun lix boqol todobaatan iyo lix.

t 195,672, waxaa loo akhriyaa boqol sagaashan iyo shan kun lix boqol iyo todobaatan iyo laba.

j 345,999, waxaa loo akhriyaa saddex boqol afartan iyo shan kun, sagaal boqol iyo sagaashan iyo sagaal.

Tusaale 2: mid kasta oo weedhan soo socota ah waxaad u qortaa tiro ahaan.

b toban kun iyo toddoba

t laba boqol iyo afartan iyo shan kun saddex boqol toddobaatan iyo laba.

j toddoba boqol siddeetan iyo saddex kun iyo lixdan iyo lix.

Furfuris:

b 10,007 **t** 245,372 **j** 783,166.

Isbarbardhigga iyo Habaynta Tirooyinka Idil:

Si aynu isu barbardhigno laba tiro oo kasta oo tirooyinka idil ah waxaynu adeegsan calaamado.

Calaamadahaasi waxa weeye **<** (ka yar), **> (ka weyn) iyo = (le'eg).**

Haddii ay laba tiro leeyihiin godad isku mid ah, isbar-bar dhig godadka ugu ahmiyada badan ee tirooyinka, oo qaado ka ugu godka wayn leh, si uu u noqdo ka ka weyn ka godka yar leh. Haddii godka ugu ahmiyada badan ee labada god ay isku mid yihiin, isu barbardhig lammaanaha godadka ku xiga ee ugu mudnaanta badan, isla markaana go'aami adiga oo isu eegaya.

Tusaale: dhexroorka fenis waa 12,320km, oo dhexroorka dhulkuna waa 12,740km, meeraheebaa ugu weyn?

Furfuris: maadaama labaduba ay isku godad yihiin, marka hore isbarbardhig kumaadyada: 12320

12740

Maadaama ay kumaadyadu isku mid yihiin, isbarbardhig, boqolaadyada. Maadaama 7 > 3 markaa 12740 > 12320. sidaas darteed Dhulkaa ka wayn Fenis.

LAYLIS 1.1

1 Akhri tirooyinkan soo socda oo mid kastoo ka mid ah u qor erayo ahaan.

b 345,678 **t** 95,673 **j** 4,694.

2 Mid kastoo weedhan soo socoda ka mid ah waxaad u qortaa tiro ahaan.

b shan kun toban iyo laba

t sagaal boqol siddeetan iyo lix kun afar boqol iyo toddobaatan.

j laba boqol iyo afartan kun saddex boqol iyo todobaatan.

3 Shaxdan hoose waxay ku siinaysaa dhexroorka saddexda meere ee ugu yar habka qorraxeedka. Tax meerayaasha adigoo u eegaya baaxadooda kana bilaabaya ka ugu wayn ilaa ka ugu yar.

Meere	Dhexroor (km)
Dhulka	12740
Merkuri	4550
Maris	6790

1.1.2 TIROOYINKA IDIL EE KA WEYN 1,000,000

Hawlgalka 1.2

1 Gawaadhida buluuga ah ee aad ku aragto sawirka waxaa loo yaqaan tagaasida, basaska yar-yar (caasiga). Waxay adeeg ka bixiyaan Adis-Ababa, iyo sidoo kale magaalooyin badan. Bas kastaaba wuxuu qaadaa 12 rakaab ah, wuxuuna noqdaa cel-celis ahaan maalintii 10 jeer, waxaana jira in ka badan 8000 oo bas Addis-Ababa. Imisa rakaab ah ayay basaskaasi maalinkasta qaadaan?

2 Waligaa miyaad aragtay geed muus ah? Waxaad halkan ku arkaysaa waa geedo muus ah iyo xidhmo muus ah oo geed ku taal.Imisa muus ayaad u malaynaysaa inuu geedku qaadi karo? Imisa muus ayay yeelan karaan 1000 geed?

3 Sannadii 2000 E.C shirkada diyaaradaha ee Itoobiya waxay qaaday 2.5 milyan oo rakaab ah waxayna heshay faa'iido dhan 507 milyan oo birr. Sannadkii 2001E.C. shirkada diyaaraduhu waxay qaaday 3 milyan oo rakaab ah, waxayna heshay faa'iido dhan 1 bilyan iyo 345 milyan oo birr.

Waa imisa faa'iidada ay heshay shirkada diyaaradaha ee Itoobiya labadaa sano? Imisa rakaab ah ayay shirkadu u adeegtay labadaasi sano?

4 Intee Inle'egbuu dayuxu dhulka ka fog yahay ?

5 Waa imisa tirada dadka ee gobolkaagu?

Markaynu ka nimaadno hawlgalkaasi sare waxaad ku soo aragtay inaanay ku filnayn in lagu tibaaxo waxyaabo badan adduunyada ah inagoo isticmaalayna tirooyin ilaa 1,000,000 oo keliya ah. Sidaas darteed waxaad baran doontaa sida loo helo tirooyinka ka badan tirooyinkii aad hore u taqaanay.

Aynu fiirino si aynu u helno hal milyan iyo tirooyinka ka weyn milyan.

b 999,999 + 1 = 1,000,000, waxaa loo akhriyaa hal milyan

t 1,000,000 + 1 = 1,000,001, waxaa loo akhriyaa hal milyan iyo hal.

j 1,000,000 + 2 = 1,000,002, waxaa loo akhriyaa hal milyan iyo laba IWM.

Si aynu u akhrino tirooyinka ka weyn hal milyan waxaynu adeegsan qiimo rugeed la mid ah sida aynu kor ku soo falanqaynay. Waxaynu adeegsan karnaa qiima rugeedka shaxdan hoose.

Shaxda 2

1,000,000,000	100,000,000	10, 000,000	1,000,000	100,000	10,000	1,000	100	10	1
Hal bilyanaad	Boqol milyanaad	Toban milyanaad	Hal milyanaad	Boqol kumaad	Toban kumaad	kumaad	boqlaad	tobnaad	kowaad
↑	↑	↑	↑	↑	↑	↑	↑	↑	↑
			7	8	9	5	6	7	3
7,895,673, waxaana loo akhriyi karaa toddoba milyan siddeed boqol sagaashan iyo shan kun lix boqol toddobaatan iyo saddex.									

Tusaale 1 Adeegso shaxda 2, ee sare si aad u akhriso tirooyinka oo erayo ahaana ugu qorto.

b 223,457,901 **t** 5,687,895,673.

Furfuris:

b 223,457,901, waxaa loo akhriyaa 223 milyan, 457 kun iyo 901.

t 5,687,895,673, waxaa loo akhriyaa 5bilyan 687 milyan 895 kun iyo 763.

LAYLIS 1.2

1 Akhri tirooyinka soo socda oo mid kasta oo ka mid ahna u qor eray ahaan.

b 2,345,678 **t** 11,233,376 **j** 101,234,567

x 6,101,034,478 **kh** 13,908,684,451.

2 Mid kastoo weedhahan soo socda ah waxaad u qortaa tiro ahaan.

b saddex milyan afar boqol iyo shan.

t boqol iyo shan milyan.

j sideed bilyan saddex milyan laba boqol oo kun shan boqol iyo saddex iyo lixdan.

Isku Habaynta Tirooyinka idil:

Hawlgalka 1.3

Adiga iyo saaxiibkaa waxaa laga yaabaa in aad isbarbar dhigteen waxyaabo badan oo inagu wareegsan, imikana halkan waa in aad isbarbardhigtaan wax yaabo kala duwan.

1 Isku habee tirooyinka adiga oo ka bilaabaya tirooyinka ta ugu yar ilaa ta ugu wayn (habka kordhaya).

b 6,714,690 1,255,730 4,206,302 1,309,542 14,219 127,008

t 6,439,006 3,594,962 12,008,860 102,708,420 360,285,114 55,7,606.

2 Maxay ahaayeen dhibcahaagii ugu sarreeyay ee xisaabta laga soo bilaabo fasalkii kowaad ilaa fasalkii Afraad?

(isbabrabar dhig dhamaan dhibcahaaga xisaabta oo qaado ka ugu badan) iyo dhibcahaagii ugu hooseeyay?

Marka aynu leenahay Axmed wuu ka yaryahay Cabdi waxaynu u jeednaa oo kale Cabdina wuu ka wayn yahay Axmed, waxaynu u habaynayaa inaga oo u eegayna da'dooda, oo da'doodana waxaa lagu muujinayaa tiro ahaan.

Xisaabta, calaamado ayaa loo adeegsadaa si loo muujiyo xaddiga tirada la barbardhigayo ta kale, calaamadahaasi waa < (ka yar), > (ka weyn) iyo = (waxay le'eg tahay).

Mar kastoo tirada gododka ee tiro uu sii bataba, isbarbardhigga godadku way sii yara adkaanaysaa, haddii labada tiro ay leeyihiin godad kala duwan markaa midka godka badan ayaa ka weyn ka kale, tusaale ahaan 100,000, waxay ka weyn tahay 99,999, sababtoo ah boqolka kun wuxuu leeyahay lix god, taasi oo ka wayn tirada leh 99999 oo ah shan god. 1,000,000, wuxuu ka weyn yahay 999.999 sababtoo ah toddoba waxay ka weyn tahay lix.

Haddii labada tiro ay leeyihiin godad isku mid ah, isbabrdhig godadka ahmiyada wayn leh.oo qaada godka ugu weyn in uu noqdo mid ka weyn ka yar. Haddii godka ahmiyada wayn lihi ay isku mid noqdaan isbarbardhigga labada god ee kale ee ku

xiga oo go'aami sida ay kala yihiin, ku celceli ilaa hanaanka aad ka helayso godadka kala duwan ee qiimo rugeedyo isku mid ah.

Tusaale 2:

1 Masaafada u dhexeysa Adis-Ababa iyo Qaahira waa 2476km, masaafada u dhexeysa Adis-Ababa ilaa Kebtawn 5230km, caasimada ugu dhaw Addis-Ababa waa tee?

Furfuris: Isbarbardhig labada masaafo ama labada fogaaneed 2476km iyo 5230km, labaduba waxay leeyihiin afar god, tirada ugu ahmiyada weyni 2476, waa 2, kaasi oo shan ka yar tirada ugu ahmiyada wayn ee 5230, waa 5. Sidaasi daraadeed 2476km ayaa waxay ka yar tahay 5230km, markaa Qaahira way uga dhawdahay Kebtawn Adis-Ababa.

2 Dhererada shanta wabi ee ugu dhaadheer ayaa hoos lagugu siiyay.

Niil	6650km
Zembazi	1673km
Nayjer	2611km
Orange	1300km
Kongo	2922km

b wabigeebaa ugu dheer dhamaantood?

t wabigeebaa ugu gaaban dhamaantood?

j wabigeebaa ah ka labaad ee ugu dheer?

Furfuris: Isbarbardhig 6650, 1673, 2611, 1300 iyo 2922, dhamaantood waxay leeyihiin afar god.

Isbarbardhig godadka ugu ahmiyada badan dhamaantood, waxaynu helaynaa 6650 ka ugu dheer. Isbabardhigida godka kale ee mudnaanta leh ee laba tiroba ah waa (2611 iyo 2922) waxaynu arkaynaa in 2922 uu yahay ka labaad ee ugu wayn. Markaa labada kale ee hadhayna waxaynu u arki karnaa 1673 in uu yahay ka afraad ee ugu wayn, 1300 uu yahay ka ugu yar.

Natiijada: 6650km > 2922km > 2611km > 1673 >1300km.

Sidaasi daraadeed waxaynu ku soo gaba-gabaynaynaa.

b wabiga ugu dheeri waa nayl,

t wabiga ugu gaabani waa Orangi.

j wabiga ugu dheer ee labaadna waa Kongo.

Tusaale 3: Aynu eegno sidaynu isku barbardhigno tirooyinka godadka tirooyinkoodu ay isku midka yihiin, inaga oo isticmaalayna qalab loo yaqaano makiinadda isbarbardhiga (shaxda 3aad) isbarbardhig tirooyinkan 12,320 iyo 12,740, taabo tirooyinka ka bilaabma godka ugu ahmiyada wayn ee ku jira laydiyada ee jiif u taxan ugu horeeya iyo ka ugu dambeeya sida lagu muujiyay falaadha ilaa iyo inta laga gaadhayo godadkoo dhan, markaa waxaad heli doontaa tirooyinka leh qiimo rugeedyo ku jira.

Joog u tax isku mid ah:

12,320 →	→ 1	2	3	2	0		12740
	=	=	<	Jooji		→	Waa
12,740 →	→ 1	2	7	4	0		ta ugu weyn

Shaxda 3aad.

Dabadeedna isbarbardhig godadka isku aadan adigoo adeegsanaaya = haddii ay isle'eg yihiin ama "<" ama ">". Haddii aanay isleekayn jooji mar alla markaad hesho mid ka mid ah calaamada dheeliga.

LAYLIS 1.3

1 Sheeg waxa ka socda makiinadda isbarbar dhiga, (eeg shaxda 3aad).

Shaxda 1.3

698,427→	→ 6	9	8	4	2	7	698641
	=	=	=	=	<	Jooji	Waa
698,461 →	→ 6	9	8	4	6	1	ta ugu weyn

2 Adeegso makiinadda isbarbardhiga si aad u hesho tirada ugu weyn tirooyinkan lamaanaha ah ee soo socda:

b 21,383 21,834 **t** 9,370,005 9,370,025

j 5,934,177 5,934,178

3 Kuwee ugu yar lammaaneyaasha tirooyinka ee soo socda?

b 98,909, 98,099

t 2,436,022,765, 2,436,022, 068

j 5,934,177, 5,934, 178

SHAQO KOOXEEDKA 1.1

1 Waa imisa tirada dadka ku nool itoobiya? Waa imisa tirada dadka ku nool Soomaaliya? Wadankeebaa dad badan?

2 Waa imisa jir Lucy? Waa imisa jir Ardi? Waydii macalinkaaga cilmiga bulshada cida ay yihiin Lucy iyo Ardi? Labadaa midkeebaa wayn? Waa imisa dhererka awash? Waa kee wabiga ugu dheer gobolkiina?

God horeedyada iyo god dambeedyada tirooyinka idil:-

Hawlgalka 1.4

1 Naqil oo buuxi shaxdan hoose

99,999+1 = -----	999,999+1 = ----	9,999,999+1 = ---	99,999,999+1= ---

2 Naqtiin oo buuxi shaqada hoose.

100,000+1 = ---	1,000,000+1 =--	10,000,000+1 =--	100,000,000+1=--

Waligaa ma ka maqashay waalidkaaga oo leh boqortooyadii teedharos waxay ka horaysay boqortooyadii Yuhanis iyo boqortooyadii Mililik, Yuhanis iyo boqortooyadii milinik waxay ka dambaysay boqortooyadii yuhanis, taasi macnaheedi waxa weeyi Tedharos wuxuu ahaa boqorkii ugu horeeyay waxaana ku xigay Yuhanis, waxaana ku sii xigay Milinik, waxaynu rabnaa in aynu qaybtan ku barano wax yaabo ku saabsan god dambeedyada iyo god horaadyada tirooyinka, waxaynu u baahanahay labada tibxood ee ah god horaadka iyo god dambeedyada tirooyinka idil, tirada idil taas oo ka yar, mid kale oo tirada idil ah, hal kaliya waa god horaadkeeda, sidoo kalana tirada idil ee ka wayn mida kale waa tiro idil, hal kaliya waa god dambeedkeeda.

Haddii aad hal ku darto tiro idil, markaa waxaad heli god dambeedkiisa, taasi waa tiro idil oo kasta oo ah wuxuu lee yahay god dambeed, kaasi oo la mid ah n + 1, haddii aad hal ka jarto tiro kasta oo idil oo aan Eber ahayn markaa waxaad heli god horaadkeeda, taasi oo ah tiro kasta oo tiro idil ah "n" marka laga reebo Eber wuxuu yeelanayaa god horaad, taasi oo la mid ah n – 1.

Tusaale 4:

b 8 = 7+1 sidaasi darteed 8 waa god dambeedka 7.

7 = 8-1 sidaasi darteed 7 waa god horaadka 8.

t 999 + 1 = 1,000,000 sidaasi darteed 1,000,000 waa god dambeedka.

j 999,999 waa god horaadka 1,000,000, sababtoo ah

999,999 = 1,000,000 – 1.

Tusaale 5: Ka soo qaad maanta waxaad haysataa 1 birr, haddii aad ku iibsato nacnac markaa wax lacag ah kuma haysatid jeebkaaga (0 birr).markaa ma iibsan kartid hal nacnac ah wax ka badan tusaale ahaan waxaa uu ina tusayaa in aanu eberku lahayn god horaad.

LAYLIS 1.4

1 Waa maxay god dambeedka iyo god horaadka 999,999,999,?

2 Miyuu jiraa tiro ugu dheer ama ugu wayn oo tirooyinka idil ah?

3 N-1 waa god horaadka "N" oo waa god dambeedka N-1, oo "N" ay tahay tiro kasta oo tiro idil ah oo aan Eber ahayn, shaxda afraad ee hoose, naqil shaxda oo qor god horaadka iyo god dambeedka iyo tirada lagu siiyay, iyada oo ay ku xidhan tahay meesha bannaan ee ka saraysa ama ka hoosaysa.

Shaxda 4

		i	ii	iii	iv	V
n-1	3,799,999	3,750,599			898,999,999	
n	3,800,000		9,000,000	10,990,000		100,000,000

4 Waa maxay god dambeedka ugu dheer ee tiro toban god ah?

5 Waa maxay god horaadka ugu yar ee tiro toban god ah?

1.1.3 QIIMA RUGEEDKA IYO HABAYNTA TIROOYINKA IDIL

SHAQO KOOXEEDKA 1.2

Aaynu ciyaarno si aanu u raadino tirada ugu wayn ee tirooyinka tirsiimo.

1 Diyaari kaadhadh yar-yar kuna qor tirooyinka 1 ilaa 7.

2 Dooro todoba saaxiibadaa ah inay tirooyinka qaataan oo ay saf u istaagaan.

3 Akhri oo qor tirada la soo bandhigo.

4 Sidan ugu cel-celi iyagoo ardayda saf tirada ay isku badalayaan kaadhasha.

5 Isku habee tirooyinka ta ugu yar ilaa ta ugu wayn oo qor tirada ugu wayn, ciyaartani ka bacdi waxaa laga yaabaa inaad indha-indhaysay qodobadan soo socda.

b sida qiima rugeedka godkastaaba uu is badalo waxaad heshaa tiro tii ka badalan ama ka duwan.

t tirada ugu wayn ee la helay intii la iskubadbadalayay waxay ahayd 7 markay taagnayd godka ahmiyada la siinayo ee ugu horaya.

j tirada ugu wayn ee la samayn karo adeegsiga tirooyinka 1 iyo 7 waa 7,6,5,4,3,2,1 tirada ugu yarina waa 1,2,3,4,5,6,7, si la isku bar-bardhigo laba tiro oo tirsiimo waxaad adeegsan kartaa farsamada isbar-bar dhiga. Tirooyinka waa-wayn sidaas oo kale ayaad u samaysaa tirada tirooyinka ugu yarna sidaas oo kale u same tirooyinka ugu yar-yar.

Tusaale 6: Finas (Venus) wuxuu cadceeda (qoraxda) u jiraa 108,000,000km, dhulkuna wuxuu qoraxda u jiraa 148,000,000km, meereheebaa qoraxda u dhaw, Faynos mise dhulka?

108,000,000→	→1	0	8	0	0	0	0	0	0	148,000,000 ayaa ugu wayn
	=	<	Jooji							
148,000,000→	→1	4	8	0	0	0	0	0	0	

Shaxanka 5

Gabo-gabaynta: 108,000,000, sidaasi darteed Fenis ayaa Qoraxda uga dhaw Dhulka. Ma ogaatay inaynu u adeegsan karno tirada ugu yar ee laydiyadan ee ibarbardhigida farsamada si la isku barbardhigo tirada ugu wayn ee Eberada, ugu dambaynta sida tusaalaha sare oo kale.

LAYLIS 1.5

1 Akhri mid kasta oo ka mid ah tirooyinka soo socda, (adeegso shaxda qiimo rugeedka hadii aad doonayso).

b	1,000,000, 010	**t**	43,000,444,344	**j**	46,790,281
x	7,000,000,345	**kh**	987,000,000,000	**d**	282,000,004,010

2 Midkeebaa ugu dad badan Afarta wadan ee Afrikaanka ah ee lagugu siiyay shaxda hoose?

b keebaa ugu dad yar?

Shaxda 6

Wadanka	Tirada dadka
Itoobiya	80,713,438
Somaliya	8,953,890
Sudan	41,347,723
Kenya	38,534,087

3 Isbarbardhig 98,987,000,000 iyo 100,000,101,101 keebaa wayn?

4 Isbarbardhig lamaane kasta oo tirooyinka soosocda oo u habee si kordhaysa.

b 17,789,675,456 iyo 8,787,675,456

t 1,000,000,009 iyo 1,000,000,010

j 987,000,000,000 iyo 982,000,000,000.

5 Sheeg qiimo rugeedka 8 ee mid kasta oo tirooyinka soo socda.

b 428,000,000 **t** 1,976,789,749.

j 11,236,708,055 **x** 6,564,845,273.

Habka Kala Bixinta Tirooyinka Idil:

Hawlgalka 1.5

100 birr = 100 hal hal birr oo nood-nood ah

= 10 tobnaad birr oo nood-nood ah

= 1 boqol birr oo nood ah

Ka fikir!

1 Waligaa ma ka fikirtay lahaanshaha hal nood oo lacag ah oo u taagan xaddi lacag ah oo badan? Imisa nood oo hal birr ah, toban birr, 100 birr ah ayaa loo baahan yahay inay u taagnaato xaddiyadan lacageed ee soo socda?

b 457 birr **t** 366 birr **j** 987 birr **x** 5342 birr.

2 Sidoo kale haddii ay jiraan 1000, 10,000 iyo 100,000 birr oo nood ah, mid kastaba inteebaa ku filaan kara inay u taagnaadaan.

b 5400 birr **t** 68,543 birr **j** 912,345 birr.

Ku tibaaxida sida wadarta taramaha ee godadka ee lagudboon rugeedyada waxaa loo yaqaanaa ku tibaaxida tirada habka fidinta.

Tusaale 7: ku qor habka fidinta (kala bixinta) 9836.

Furfuris: $9836 = 9 \times 1000 + 8 \times 100 + 3 \times 10 + 6 \times 1$.

Tusaale 8: Dr.Aamina waxay kala soo baxday kaydkeedii 1,200,000 oo birr. Waxay doonaysaa inay gaadhi ku iibsato 400,000 oo birr iyo Guri ah 600,000 oo birr. Haddii kaliya ay hayso 100 nood oo birr ah? Imisa 10 birr oo nood ah ayay tahay inay bixiso haddii aanay hayn wax nood ah oo kale?

Furfuris: Waxaa ku jira 4,000 oo hal boqol oo birr oo nood ah 400,000, sidoo kale 6000 hal boqol oo birr oo nood ah ayaa kujira 600,000. Sidaasi darteed hadal iyo dhamaantii waxaa ku jira 400 + 6000 = 10,000 oo boqlaad, 1,000,000 birr. Sidaasi darteed Aamini waa inay bixisaa 100,000 tobnaad oo nood ah labada shayba.

LAYLIS 1.6

1 Fidi ama kala bixi mid kastoo tirooyinka soo socda ah.

b 830,876 **t** 45,108,614 **j** 9,629,041,538.

2 Haddii lagu siiyay toban 100 oo noodh ah, sideed 10 oo noodh ah iyo hal 9 birr oo nood ah, imisa lacag ah ayaad haysataa gabi ahaan?

3 U tibaax mid kastoo ka mid ah tirooyinkan soo socda habka caadiga ah.

b 6x1,000,000+8x10,000,000+4x1000+2x1.

t 7x100,000,000+3x10,000,000+9x100,000+4x1000+3x100+2x1.

4 Buuxi tirooyinka maqan:8,430 = 8x1000+____x100+3x___.

5 Haddii uu Fu'aad haysto 5 boqol oo nood birr, lix tobaan nood birr ah iyo hal sagaal nood birr ah. Imisa birr ayuu fu'aad jeebka ku haystaa?

Hawlgalka 1.6

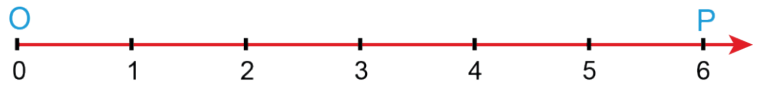
Ka fikir:

Qaybihii hore waxaad ku soo baratay in aanay jirin tiro ugu wayn tirooyinka idil. Waligaa foomustarkiinu ma idiin sheegay inaad saf u joogsataan, sida in mid kastaaba uu is dhextaago mid dheer iyo ku gaaban dhexdooda.

i Waa imisa tirada fallaadhan hoose?

ii Iskuday inaad mid sawirto oo aad ku muujiso 100 ilaa iyo 10,000.

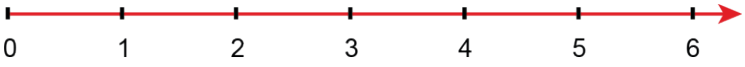
U fiirso falaadha tirada OP. fallaadha tirada waxay leedahay hal bar bilaw oo ah **0**, laakiin malaha baar dhamaad. **P** waa bar uun midig ka xigta **O**.



Haynu dhigno qiimaha eber (0) barta 0 oo dooro qaar ka mid ah cabirka halbeegayada (cm, mm, inch) masaafada (fogaanta) fallaadha ee ka timaada barta **0**. Haddii aynu siino qiimaha "N" bar kasta oo ku taal falaadha oo ka durugsan barta **0,** tiro kasta oo tiro idil ahi waxay ku beegnaan doontaa qaar ka mid ah baraha fallaadha. Leebka fallaadhu wuxuu tilmaamayaa tirooyinka waawayn had iyo jeer la dhigo dhinaca midig ka xigta kuwa yar-yar, oo tirooyinka idil waxay ka bilaabmaan eber "0" mana jirto bar ay ku dhamaadaan.

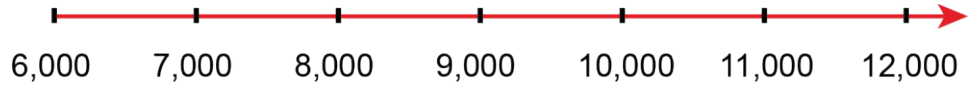
Fallaadha tirada dusheeda tiro kasta oo idil had iyo jeer way ka yar tahay tiro kasta oo ka xigta midig teeda. Tiro kasta oo aan eber ahayn had iyo jeer way ka wayn tahay tiro kasta oo bidix deeda ah.

Waxaan si fudud u arki karnaa in tiriooyinka fallaadha tirada dusheedu ay kordhaan markaad u socoto bidix ilaa midig. Waxaan diirada saaraynaa oo kaliya tirooyinka aynu rabno inaynu muujino (adeegsanayo) fallaadha tirada dusheeda sidaasi darteed, haddii aynu isticmaalno tirooyinka waawayn, waxaynu ku bilaabaynaa tirooyinka ku dhaw tirada aynu ka shaqaynayno. Taasi waa sababta fallaadha tirada ee tusaalaha 4 uu uga bilawdo 6000.



Leebkani wuxuu ina tusayaa in tirooyinku ay kordhayaan marka aad u sii dhaqaaqdo midig isla markaana ayna lahayn bar dhamaad.

Tusaale 4: U fiirso fallaadha tirada ee hoose.



Labadee tiro dhexdooda ayaa la dhigi tirada 7864?

Halkeed u malaynaysaa inay ku sax tahay in la dhigo tiradani 11,111?

Furfuris: Fallaadhaha tirada ee 7864 way ka yar tahay 8000 wayna ka wayn tahay 7000 (summad ahaan waxaynu u qori $7000 < 7864 < 8000$).

Sidaasi darteed, waa in la dhigaa dhinaca bidix ee 8000 iyo dhinaca midig ka xigta 7000. Maadaama 11,111 ay ka wayn tahay 11,000 oo ay ka yar tahay 12,000, waxaa ladhigayaa halka u dhaxaysa 11,000 iyo 12,000 ee falaadha tirada dusheeda.

LAYLIS 1.7

1 Adeegso fallaadhaha tirada ee tusaalaha 4^{aad} si aynu u sheegno tirooyinka idil ee ay u dhexaynayaan mid kasta oo ka mid ah tirooyinka soo socda.

b 6,071 **t** 13,000 **j** 9,400

x 11,500 **kh** 10,001 **d** 7,800.

2 Lugayntu qofka caafimaadkiisa ayay u fiican tahay. Asma waxay socod ka bilawday gurigeeda waxayna u socotay 3km guriga adeerkeed. Ku muuji fallaadha xariiqda dusheeda goobta guriga Asma saaxiibadeed iyo guriga adeerkeed uu ku yaal.

1.1.4. TIROOYINKA DHABANKA AH IYO KUWA KISIGA AH

Hawlgalka 1.7

Ka fikir!

1 Waligaa ma ka fikirtay tiro, taasi oo loo kala qaybin karo laba tiro oo idil oo isleeg?

2 Goorma ayaad u malaynaysaa in hooyadaa ay dhibaato ku noqondoonto inay si isleeg adiga iyo walaashaa idiinku qaybiso nacnac, marka ay 8 ama 5 nacnac ah hayso?

3 Miyay tirooyinkani 6,8,12,200,564, loo qaybin karaa laba tiro oo isleeg oo tiro tiirsimo ah? Balka waran kuwan kale 13, 671,359?

Tirada idil ee laba hadhaa la'aan u qaybsanta waxaa la yidhaahdaa tiro dhaban ah. Tiro idil waa kisi haddii aanay dhaban ahayn.

Tusaale 1: 0,2,4,6,810,12,14,18,20,22,24,26,28,30,----------.

Waa tirooyinka dhaban ah, sababtoo ah laba ayay u qaybsami karaan hadhaa la'aan.

Tusaale 2: 1,3,5,7,9,11,13,15,17,19.----------.

Waa tirooyin kisi ah sababtoo ah ma aha dhaban. Hadda waxaan u qaybin karnaa tirooyinka idil laba kooxood: Kisi iyo Dhaban.

SHAQO KOOXEEDKA 1.3

U falanqee koox koox si aad uga jawaabto su'aalahan soo socda.

1 Waa maxay god dambeedka tirada dhabanka ah? Waa maxay god horaadka tirada dhabanka ah ee aan eber ahayn?

2 Waa maxay god horaadka iyo god dambeedka tirada kisiga ah?

3 Fiiri godka ku aadan halka koowaadka ee tiro kasta oo dhaban ah, taas oo leh hal god wax ka badan ma dhabanbaa mise waa kisi?

4 Ma sheegi kartaa in ay tiradu tahay dhabaan ama kisi adigoo laba u qaybinaya?

5 Miyay wadarta laba tiro oo dhab ah noqotaa dhaban had iyo jeer? Wadarta laba tiro oo kisi ahi ma kisibaa mise waa dhaban?

6 Waa maxay wadarta tiro kisi iyo tiro dhaban?.

Astaamaha Tirooyinka Dhabanka ah iyo kuwa Kisiga ah:-

Shaqo kooxeedii xaga sare waxaad u soo ogaatay kuwan soo socda.

1 Wadarta laba tiro oo dhaban ahi waa dhaban.

Taasi oo ah, dhaban + dhaban = dhaban

2 Wadarta laba tiro oo kisi ahi waa dhaban.

Taasi oo ah Kisi + Kisi = dhaban.

Tiro idil waa dhaban haddii tirooyinka godka booska koowaad uu yahay dhaban.

Tusaale 3: 67,899,914 waa dhaban, sababtoo ah godka booska kowaadka ah ayaa dhabana.

LAYLIS 1.8

1 Tirooyinka soo socda kuweebaa dhaban ah, kuweebaa kisi ah? Waayo?.

b	3,476	**t**	7,856,491	**j**	677,779
x	48,624	**d**	1,234,521,112	**r**	9,751,110
s	199,786,548.				

2 Adigoon tirada u qaybinayn laba, garo ama kala saar tirooyinka dhabanka ah iyo kuwa kisiga ah.

b	348,787	**t**	48,350,862
j	982,056,340	**x**	3,689,837,421

3 **b** Imisa tiro oo dhaban ah ayaa u dhaxaysa **0** iyo **10** oo tobana uu ku jiro?

t Imisa tiro oo kisi ah ayaa u dhexeeya 0 iyo 100 oo uu ku jiro 100?

j Waa imisa tirada dhabanka ah ee ugu wayn ee ku jirta shanta god ee ugu horeeya tirooyinka tirsiimo?

1.2. ADEEGSO TIROOYINKA IDIL

Xisaabtii fasalka 4aad waxaad ku soo baratay inaynu isku dari karno oo aanu isku dhufan karno labo tiro oo idil ilaa iyo 1,000,000 oo aad markaana hesho tiro kale oo idil. Waxogaa cadaymo ah waxaan ku soo bandhigi karnaa adeegsiga kalagoynta iyo Iskugaynta ee tirooyinka idil. Haddaba fasalkani waxaad ku baran doontaa inaad ku samayn karto si la mid ah tirooyinka idil ee kawayn 1,000,000.

1.2.1 ISUGAYNTA IYO KALAGOYNTA TIROOYINKA IDIL

Hawlgalka 1.8

Ka fikir!

1 Ka soo qaad in uu nin haystay lacag birr 10,000,000 oo ay u taalo bangiga "A" waxaa kale oo uu haystaa birr 15,000,000 oo u taal bangiga "B". waa imisa wadarta lacageed ee u taala labada Bangi?

2 Raadi wadarta mid kastoo ka mid ah kuwan soo socda.

b 145,348,102 iyo 226 t 658,123 iyo 2,904,000.000

3 ka soo qaad tukaan ayaa ku yaal halka idiin dhaxaysa adiga iyo saaxiibkaa gurigiisa, saaxiibkaa gurigiisu wuxuu u jiraa gurugaaga 3000m oo 1751m wuxuu u jiraa tukaanka. Inteebuu tukaanku guriga u jiraa?

4 Kalagoo 123,567 iyo 1,000,000 Waxa kuu soo baxa waxaa la yidhaahdaa farqiga labada tiro. Maxaa dhacaya haddii aad isku darto farqiga iyo laba tiro ta yar?

B Isu gaynta Tirooyinka Idil:-

Cashirada xisaabta ee Fasalka 4aad, waxaad ku soo aragtay in iskudarida macnaheedu tahay badinta xaddiyada. Iskugayntu waa hanaan xisaabeed oo shayyada la iskugu keeno.

Tusaale 1: Shaxdan soo socotaa waxay ku siinaysaa tirada dadka ku nool afar wadan oo Afrika ah sida hoos ku xusan. Imisa dad ah baa wada jir ahaan ugu nool, Itoobiya, Somaaliya, Kenya iyo Sudan?.

Itoobiya	Sudan	Smaaliya	Kenya
80,713,434	41,347,723	8,953,890	38,534,087

Furfuris: wadarta dadyawga ku nool afarta wadan waxaa lagu helayaa iskudarka dadka ku nool wadankasta oo afartan wadan ah.

80,713,434 +41,347,723 + 8,953,890 + 38,534,087 = 169,549,134.

Sidaasi darteed wadar ahaan tirada dadka ku nooli waa 169,549,134.

Halkan waxa ah qaar ka mid ah astaamaha Isugaynta ee Tirooyinka Idil:-

1 **Astaamaha oodnaanshaha ee iskugaynta**; a+b waa tiro tirsiimo had iyo jeer, a iyo b ha noqdaan laba tiro oo tirsiimo oo kasta.

2 **Astaanta kala hormarinta ee iskugaynta**;

a + b = b + a, oo a iyo b ay yihiin tiro kasta oo idil.

8 + 5 = 5 + 8 = 13,had iyo jeer waa Run.

3 **Astaanta hormo galinta iskugaynta ee tirooyinka idil**:

a + (b + c) = (a + b) + c, oo a,b iyo c ay yihiin tiro kasta oo idil.

2, 3 iyo 9 waa tirooyinka idil.

4 **Astaanta asal madoorshaha ee eber**: a + 0 = 0 + a, oo a tahay tiro kasta oo idil. Tusaale b + 0 = 0 + 6 = 6

LAYLIS 1.9

1 Ka soo qaad maamulka dugsi ayaa waxay rabeen inay dhisaan fasalo cusub, kharashku waa 6,463,010 birr oo sibidhka, 330,115,009 birr waa biraha, 70,012,109 birr waa shaqaalaha iyo 350,000 birr oo ah kharashyo kale. waa imisa wadarta kharashka ee loo baahan yahay in lagu dhiso fasalada cusub?

2 Qiimee mid kastoo ka mid ah wadarahan.

b 457672 + 98023995 + 100076 t 6204 + 596 + 300634 + 274561

j 3358 + 109 + 13412 + 18263331.

3 Madbacad ayaa daabacday 4,532,000 buug isniintii, 686,902 buug salaasadii iyo 282,462 buug Arbacadii, imisa buug ayaa la daabacay saddexda maalmood gudeheed?

4 Oday iyo islaantiisa ayaa waxay ka shaqeeyeen warshado kala duwan. Dakhliga odaygu waa 3250 birr, dakhliga islaantiisuna waa 3500 birr. Waa imisa wadarta dakhliga labadoodu?

T Kala Goynta tirooyinka Idil:-

Kalagoyntu waa bixinta, kharash gaynta, luminta ama ka qaadida.

Ka fikir intee lacag ah ayaa hooyadaa ama aabahaa ay ka jaraan miishaarkooda ama xoogsigooda, marka ay bixinayaan lacagta iskuulka, cuntada, dharka, kabaha iyo waxyaabaha kaleba.

Marka uu macalinkaagu ku siiyo "X" warqadaada imtixaanka dusheeda ee ay ahayd in lagu saxo 100, marka macalinkaagu wuxuu ka jaray hal dhibic ah, dhibcahaagii boqolka ahaa. Sidaas darteed, kalagoyntu waa lumid! Hooyadaa waxay ka soo jartaa tiro roodhi ah oo ay haysay marka ay qureecda ku siinayso.

Haddii a iyo b ay yihiin, laba tiro oo idil halkaas oo a > b, markaa a – b = c, halkaas tiro idil waxaana looyaqaanaa farqiga a iyo b.

Haddii a – b = c markaa a = b + c , marka ay yihiin tirooyinka idil a iyo b, halkaas a > b.

Tusaale 2: Shaxda soo socota waxay muujinaysaa qotonka (qotonka, dhererka hoose) ee qaar ka mid ah badaha adduunka.

Bad	Pasifik	Atlantik	Hindiya	Aaktik
Hoos u qotonka m	11500	9200	8260	4880

b Imisa ayay ka gun dheer tahay badda baasifiga, badda atlantikada.

Furfuris: 11500 m – 9200 m = 2300 m.

t Waa maxay farqiga u dhexeeya hoos u qotonka ugu dheer iyo qotonka ugu gaaban ee baddu?

Furfuris:

Ta ugu gun dheeri waa baasifik (11,500m). waxaad u baahan tahay in ka soo saarto shaxda ta ugu gun gaaban adigoo barbardhigaya kuwa hadhay, mida ugu qotan yar baa ugu gun gaaban, ta ugu gun gaabani waa Arctic (4880m).

LAYLIS 1.10

1 Ka shaqee adigoo adeegsanaya kalagoyn kuwan so socda.

b 9,000,002 – 124645 **t** 982,265,789 – 3897845

j 596,843 – 300,004 **x** 9,255,056,231 – 7152598.

2 Haweenay ayaa boorsadeeda ku haysatay 5000birr. Waxay iibsatay koonbuyutar waxayna bixisay 3920birr. Waa imisa lacagta ugu hadhay boorsada?

3 Iskuul baa waxaa ku jira 12,500 wiil.

b haddii wadarta ardaydu ay tahay 30,000, waa imisa gabdhaha ku jiraa?

t haddii 20,000 ay kawayn yihiin 8 jir imisa ayaa 8 jir ah ama ka yar 8 jir?

1.2.2 ISKUDHUFASHADA TIROOYINKA IDIL

Hawlgalka 1.9

1 Haddii qiimaha hal buug uu yahay 4 birr, waa imisa qiimaha hal buug?

2 Nin beero leh ayaa wuxuu iibiyaa 30 litir oo caano ah, maalin kasta imisa litir ayuu iibiyaa 10 bilood gudahood (oo bishiiba ay tahay 30 cisho)?

3 Hel taranta mid kasta oo ah kuwan soo socda ah:

b 23456×100 t 33298×111 j $1,000,000 \times 500$

Iskudhufashadu had iyo jeer way badataa, laakiin waa hab deg-deg ah.

Tusaale 3: ahaan, $2 \times 3 = 2+2+2 = 3 + 3$.

Guud ahaan:

$n \times m = n + n +$ -------+ n (m jeer) ama $m + n +$ ------ + m (n jeer)

Tusaale 4: xisaabi 423×211.

Furfuris:

$$\begin{array}{r} 423 \\ \times\ 211 \\ \hline 423 \\ 423 \\ +\ 846 \\ \hline 89253 \end{array}$$

Jiif u tax hore waa $423 \times 1 = 423$ ka labaad waa la mid ka saddexaad waa $423 \times 2 = 846$, markaana waa iskudarida habka ina siinaya natiijada:-

$423 \times 211 = 84600 + 4230 + 423 = 89253$.

Tusaale 5: tobankii sano ee ugu dambeeyay celcelis ahaan 20 dalxiisayaal ah ayaa maalinkasta soo booqanayay Qasriga Atse Fasil ee Gondar ku yaal. Waa imisa dakhliga laga helay dalxiisayaasha hadii dalxiise kasta laga qaado 30 birr?

Furfuris: Tirada dalxiisaha = 20 dalxiise × 365 maalmood × 10sano

= 73,000.

Mid kastana waxa uu bixiyay = 30 birr .

Wadarta dakhliga = $30 \times 73,000 = 2,190,000$ birr.

Tusaale 6: Shirkada diyaaradaha ee Itoobiya waxay samaysaa 100 duulimaad maalinkasta. Duulimaad kastaaba waxa uu qaadaa 200 oo rakaab ah celcelis ahaan kiraduna waa 3000birr. Waa imisa dakhliga maalin kasta?

Furfuris: duulimaadkii kali ahba wuxuu la mid yahay tirada macaamiisha oo lagu dhuftay lacagta uu bixiyay macmiil kastaaba waana sidan;

200×3000birr = 600,000 birr

Sidaasi darteed marka laga hadlo yoomiyaha duulimaadyada wadarta dakhligu waxay noqon.

$100 \times 600{,}000 = 60{,}000{,}000$birr.

Ama waxaa lagu heli karaa iskudhufashada dhamaan saddexda sidan soo socota.

$$100 \times 200 \times 300 = 2 \times 3 \times 10{,}000{,}000 = 60{,}000{,}000\text{birr}$$
$$= 60{,}000{,}000\text{birr}.$$

Tusaalaha ugu dambeeya waxaad ku aragtay ama ku ogaatay in kuwa leh eberada badan si fudud la isugu daro oo la isku dhufto. Waxaan ku arki doonaa in tani faa'iido ay u yeelan doonto qaar ka mid ah isticmaalka.

LAYLIS 1.11

1 Imisa saacadood ayaa ku jira 64 maalmood?

2 Imisa daqiiqo ayaa ku jira 12 saacadood?

3 Nin beeralay ah ayaa wuxuu leeyahay 43 sac. Sac kastaaba waxa uu u baahan yahay 250 kg oo cunto ah maalintii imisay 43 sac cunayaan.

b 1 maalin **t** 1 todobaad **j** 1 sano.

4 Waxaa jira 1000 jawaan oo tufaax ah mid kiiba waxaa kujira 600 tufaax. Haadii qiimaha halkii tufaax ahi uu yahay 5birr, waa imisa kharash ka dhamaan 1000 jawaan ee tufaaxa ahi?

Astaamaha iskudhufashada:

Hawlgalka 1.10

Ka fikir:

1 Hel taranta mid kasta oo kuwan soo socda ah.

b 200×57 **t** 57×200.

2 Waa maxay xidhiidhka ka dhexeeya taramaha su'aasha 1, ee b iyo t? maxaad ku gabo-gabaynaysaa tani:

3 Soo bandhig mid kastoo ka mid ah shaqooyinkan soo socda.

b $(23 \times 5) \times 4$ **t** $23 \times (5 \times 4)$.

4 Waa maxay xidhiidhka ka dhexeeya taramaha su'aasha 3, ee b iyo t? maxaad ku gabo-gabaysay tani?

(Astaanta Kala Hormarinta iskudhufashada ee tirooyinka idil) $a \times b = b \times a$.

Tusaale 6: $2 \times 9 = 18 = 9 \times 2$.

(Astaanta hormogalinta iskudhufashada) $(a \times b) \times c = a \times (b \times c)$, halkaas oo a, b iyo c ay yihiin tirooyin idil.

Tusaale 7: $(4 \times 7) \times 5 = 28 \times 5 = 140$

$(4 \times 7 \times 5) = 4 \times 35 = 140$.

Markaynu ka nimaadno taasi waxaynu ku gabo-gabaynaynaa.

$(4 \times 7) \times 5 = 4 \times (7 \times 5)$.

Astaamaha kala dhiga iskudhufashada ee iskugaynta:

$a \times (b + c) = a \times b + a \times c$, halkaas oo a, b iyo c ay yihiin tirooyin idil.

Tusaale 7: $2 \times (6 + 12) = 2 \times 18 = 36$

$2 \times 6 + 2 \times 12 = 12 + 24 = 36$.

Tusaale 8: Ma u fiirsatay in habka aynu u adeegsano iskudhufashada ay samayso adeegsiga astaanta kala dhiga?

126

× 89

1134 126×9

+1008 126×80

11214 $126 \times (80 + 9) = 126 \times 80 + 126 \times 9 = 11214$.

Tirada idil ee lagu dhufto eber had iyo jeer waxay ku siisaa eber.

Astaanta eber: haddii "a" ay tahay tiro idil, markaa ax0 =0.

Tusaale 9: $5 \times 0 = 0 = 0 \times 5$; $0 \times 0 = 0$.

Tirada idil ee 1 lagu dhuftay had iyo jeer waxay ku siisaa tiradii lafteeda:

Astaanta hal: $a \times 1 = 1 \times a = a$, oo a ay tahay tiro kasta oo idil.

Tusaale 10: $2568 \times 1 = 1 \times 2568 = 2568$.

Adeegsiga Qiimayaasha ugu Dhaw:-

Waxaynu isticmaalnaa qiimaha ugu dhaw, marka aynu sheegayno qiyaasta iskudhufashada tirooyinka waawayn.

Kaba soo qaad waxaad doonaysay inaad ogaato inta dad ee daawanayay filim cusub. Markaa, waxaad waydiisay saaxiibka kaas oo filimka arkay. Ka dib markuu waxoogaa fikiray, wuxuu yidhi, hoolka waxa yaalay 1600 oo kursi, oo ugu yaraana 1000 ka mid ah waa la camiray, markaa ilaa 1000 qof bay ahaayeen; markaa

kadibna waxaad waydiisay ninkii tigidhada iibinayay, wuxuuna kuu sheegay inuu iibiyay 1400 tigidh. Saaxiibkaa wuxuu kuu sheegay tiradii ugu dhawayd ee kuraasida la camiray. Sidoo kale waxaynu u adeegsanaa ugu dhawaanta iskudhufashada tirooyinka waawayn.

Markaan ugu dhawaanta adeegsanayno waxa kale oo aynu galnaa khalado. Khaladka ah farqiyo u dhexeeya tirada dhabta ah iyo qiyaasta.

Tirooyinka leh eberada ayaa ugu fudud in loo adeegsado. Taasi waa sababta aynu ugu dhawaanshaha tirooyinka ugu soo saxeexno, ugu dhawaan kowaadka, tobnaadka, boqlaadka iwm.

Summada "~" ayaa loo isticmaalaa ugu dhawaanshaha, tusaale ahaan waxaynu qornaa 42 ~ 40, si aynu u sheegno 42 waxaa lagu qiyaasay 40.

Tusaale 11: shaxda 10, tirooyinkan hoose waxaa lagu qiyaasaa iyadoo lagu soo saxeexa tirada ugu dhaw ee tobnaad, boqlaad iyo kumaad.

Shaxda 10

Ku soo saxeexda tiro idil ugu dhawaan dhufsanayaasha toban (tobnaad, boqlaad IWM.)			
Tobnaadka ugu dhaw, hadii godka ugu horeeyaa uu kawayn yahay 4, markaa 1 ayaa lagu dari godka tobnaad, godkii koowaadna eber ayaa lugu badali.	Haddii godka koowaad uu kayar yahay 5, godkii tobnaad sidiisa ayuu ahaanayaa oo godkii koowaad waxaa lagu badali eber.	A = 657,7 > 4 A = 654, 4 < 5	660 650
Boqlaadka ugu dhaw: haddii godka tobnaadku uu ka wayn yahay 4, 1, ayaa lagu darayaa godka boqlaadka ah, oo dhamaan godadka midig ka xigana waxa lagu badali eber.	Haddii uu godka tobnaad uu ka yaraado 5, markaa godka boqlaad sidiisii ayuu ahaanayaa oo dhamaan tirooyinka midigta kaxigana waxaa lagu badali eber.	4567, 6 > 5 4539, 3 < 5	4600 4500
Kumaadka ugu dhaw ~ haddii godka boqlaad uu ka weynaado 4, markaa 1, ayaa lagu darayaa godka kumaadka ah, oo dhammaan godadka midig ka xigaana waxaa lagu badali eber.	Haddii godka boqlaadku uu ka yaraado 5, markaa godka kumaadku sidiisii ayuu ahaanayaa, oo dhamaan godadka midig ka xigaana waxaa lagu badali eber.	43176, 1 < 5 43576, 5 > 4.	43000 44000

Tusaale: 6127 × 2563~ 6000 × 3000 = 18,000,000.

labadaba waxaa lagu soo sexeexay kumaadka ugu dhaw.

LAYLIS 1.12

1 Qiyaas taranta soo socota adigoo qiyaasaya tirooyinka ku dhuftayaasha ugu dhawaan tobnaadka, boqlaadka iyo kumaad oo raadi qaladaadka xaalad kasta.

b 39,827 × 245 **t** 5,629,998 × 3728 **j** 32,651,777 × 56984

2 Adeegso astaanta kala dhiga iskudhufashada ee iskugaynta si aad u raadiso tirooyinka maqan ee mid kastoo kuwan soo socda ah.

b $8 \times (20 + 4) = (8 \times 20) + (8 \times \_\_\_)$

t $28(10 + \_\_\_\_) = (28 \times 10) + (\_\_\_\_ \times 9)$

j $56 \times \_\_\_\_\_ = (56 \times 30) + (56 \times 4)$

3 Adeegso astaanta kala dhiga si ay kuu caawiso raadinta taramaha mid kasta oo kuwan soo socda ah.

b $(49 \times 7) + (21 \times 7)$ **t** $(92 \times 27) + (92 \times 23)$.

j $(75 \times 12) + (25 \times 12)$.

4 Qiimee:

b 2868×1 **t** 1×54863 **j** 967468×0 **x** 967468×0

5 Faadumo waxay leedahay 470 oo saf oo geedo liin ah oo mid kiiba ay ku yaalaan 34 geed. Waxay karajaynaysaa 27 sanbiil oo liin ah geedkiiba. Imisa sambiil oo liin ah ayay Faadumo ka rajaynaysaa (ka filaysaa) dhamaan geedaha?

6 Guri wayn oo filimada lagu daawado ayaa wuxuu leeyahay 17 saf (line) oo kuraasi ah oo saf kastaba ay yaalaan 24 kursi. Dad tiradoodu dhantahay 343 ayaa hoolka soo fadhiistay. Imisa kursi ayaa bannaan?

1.2.3 ISUQAYBINTA TIROOYINKA IDIL

Hawlgalka 1.11

Ka fikir!

1 Haddii aynu ugu qaybino 60,000 buug, 20 labreeri si isle'eg, waa immisa qaybta laybareeri kasataaba? Waa imisa hadday ahaan lahaayeen 300 labreeri?

Waa imisa hadday ahaan lahaayeen 6000 labreeri?

2 Ma heli kartaa tusaalayaal kuwaas oo tirada walxaha marka loo qaybiyo tirada dadka si isleeg oo aanay wax hadhaa ah yeelan?

3 Isuqaybi 58916 iyo 1300 oo ku qor jawaabtaada laba god oo jajab toban leh ah.

Waxaad horay ugu soo baratay casharadaadii fasaladii hoose sida la isugu qaybiyo tirooyinka idil ilaa iyo hal milyan. Markaynu tiro idil u qaybino tiro kale oo idil oo aan eber ahayn, waxaa lagayaabaa in hadhaagu uu eber noqdo ama uu ka duwanaado.

Haddaba qaybtani, waxaad ku arki doontaa sida loo soo bandhigo ama loo muujiyo iskuqaybinta oo lagu tibaaxo qaybta jajab tobanleh ku dhamaanaya laba god dhibicda dabadeed.

Tusaale: eeg sida isuqaybintan looga shaqeeyay.

$$
\begin{array}{r}
4.24 \\
325\overline{)1378} \\
-1300 \\
\hline
780 \\
-650 \\
\hline
1300 \\
-1300 \\
\hline
0000
\end{array}
$$

Ku dar “0” baaqiga 78, 78 uma qaybsami karto 325.

Ku dar “0” baaqiga 13 maadaama 13 aanay u qaybsamin

Tusaale: 13 beeralay ah ayaa dhul wada leh sanadkii hore waxay ku iibiyeen wax soo saarkoodii 1885 birr, raadi mid walba qaybtiisa haddii ay lacagta si isleeg u qaybsanayaan, dhammaan beeralaydaasi?

$$
\begin{array}{r}
145 \\
13\overline{)1885} \\
-13 \\
\hline
58 \\
-52 \\
\hline
65 \\
-65 \\
\hline
00
\end{array}
$$

Talaabooyinka:

b 18 ayaa loo qaybiyay 13 oo qaybtu waa 1

t 1 ayaa lagu dhuftay 13

j 13 ayaa laga jaray 18, baaqigu waa 5

x qor 8 halka uu yaal oo sidaa u sii wada hanaanka qaybinta.

LAYLIS 1.13

Ka shaqee

b $32\overline{)4275584}$ **t** $70\overline{)21755}$ **j** $89\overline{)4251289}$

Astaamaha isuqaybinta:-

SHAQO KOOXEEDKA 1.4

1 **b** 6 u qaybi 3. **t** hada, 3 u qaybi 6

j jawaabaha b iyo t ma isku mid baa?

x iskuqaybintu miyay ogolaanaysaa astaanta hormogalinta.

2 Ka shaqee mid kasta oo kuwan soo socda ah.

b $(12 \div 6) \div 2$ **t** $12 \div (6 \div 2)$

j jawaabta b iyo t ma isku midbaa? Waayo?

Isu qaybintu hormogalinta iyo kala hormarinta midna ma aqbasho.

Tusaale:

b $6 \div 2 = 2$ laakiin $3 \div 6$, suurta gal kuma aha adeegsiga tirooyinka idil, sababtoo ah uma qaybin karno saddex, lix oo ma heli karno qayb ah tiro idil.

t $(32 \div 16) \div 2 = 2 \div 2 = 1$ iyo $32 \div (16 \div 2) = 32 \div 8 = 4$

markaa $(32 \div 16) \div 2 \neq 32 \div (16 \div 2)$.

Sidaasi darteed iskuqaybintu ma ogolaato hormagalinta iyo sidoo kale astaanta kala horumarinta.

LAYLIS 1.14

1 Haddii Marwo Canab ay daqiiqadiiba garaaci karto 72 eray, imisa ayay ku qaadan inay garaacdo warbixin ka kooban 3600 oo eray?

2 Markii uu Cabdi joojiyay sigaar cabida, wuxuu bilaabay inuu lacag kaydsado. Haddii uu kaydsaday 4160birr dhammaadkii sanadka, imisa baakidh oo sigaar ah ayuu cabi jiray todobaadkii, haddii qiimaha halkii baakidh uu yahay 40 birr?

3 Qolka hurdada Jamiila bedkiisu waa 20mitir oo labajibaaran. Haddii rooga qolkaasi la dhigayo qiimihiisu yahay 1800birr, muxuu ahaa qiimaha halkii mitir labajibaar ee rooga ahi?

4 Haddii Muna ay 234 digaagado yar-yar ah oo ay ku iibsatay 8424, dabadeedna ay dib ugu iibsatay 9828birr. Imisay ku soo iibsatay halka xabo ee digaag ah? Imisay ku sii iibisay halkii xabo ee digaag ah.

1.2.4 MAS'ALOOYINKA KA KOOBAN DHAWR XISAABFAL

Hawlgalka 1.12

Ka fikir!

1 Waligaa ma aragtay tibaax leh hal xisaabfal wax ka badan

2 Iskuday tan $6 + 9 - 5 \times 9 \div 3 + 18 - 2 \times 4 + 10 \div 2 - 2$. Xageed ka bilawday tan? miyaad la kulantay wax dhibaato ah?

Haddii aad dabaakh waydiiso sida loo kariyo cunto gaar ah, wuxuu kuu sheegi doonaa waxyaabaha la isku geegeeyay iyo waliba horsanaanta ama sida ay isugu xigayaan wax yaalaha la igu geynayo si aad u hesho cuntadii loogu talo galay. Waydii hooyadaa siday u diyaariso Bariiska.

Waxa sidaas oo kale run ah iskudarida tirooyinka; halkaas oo ay jiraan calaamada kala duduwani. Waa inaad barataa sharciyo kale oo ku saabsan sida la iskugu darayo tirooyin leh calaamado kala duwan, calaamadeebaa marka ugu horaysa laga shaqeeyaa ama calaamadeebaa ugu danbaynta laga shaqeeya.

Masalooyinka inta badan waxay leeyihiin calaamado kala duwan iyo tirooyin. Haddii ay tibaaxdo ka kooban hal calaamo wax kabadan: iskugayn, kalagoyn, iskudhufasho iyo iskuqaybin, markaa waxaynu raaci habka hoos la inagu siiyay si aynu u fududayno tibaaxda.

Marka hore ka shaqee xisaab fallada ku jira qawska haddii wax qaws ahi ku jiro tibaaxda. Mar labaadka, ka shaqee iskuqaybinta iyo iskudhufashada marka saddexaadka, ka shaqee iskugaynta iyo kala goynta.

Tusaale 1: fududee mid kastoo kuwan soo socda ah:

b $5 + 9 \times 3$ **t** $6 + (11 - 3) \div 4$

j $(3 + 4) \times 2$ **x** $20 \div 2 - 2 \times 3 + 7$.

Furfuris:

b marka hore iskudhufashada $9 \times 3 = 27$

marka xiggana iskugaynta $5 + 27 = 32$

Sidaasi darteed $5 + 9 \times 3 = 5 + 27 = 32$.

t marka hore ka shaqee tibaaxda qoyska/bisha ku jirta : 11 – 3 = 8

marka xigta isku qaybinta: 8 ÷ 4 = 2

Sidaasi darteed, 6 + (11 – 3) ÷ 4 = 8.

j marka hore qawska: 3 + 4 = 7, haddana iskudhufashada,

7 x 2 = 14

Sidaasi darteed, ((3 + 4) × 2 = 14)

x isku qaybinta marka hore 20 ÷ 2 = 10

haddana iskudhufashada: 2 × 3 = 6

haddana kalagoynta 10 – 6 = 4

haddana iskugaynta 4 + 7 = 11

Sidaasi darteed, 20 ÷ 2 – 2 × 3 + 7 = 11

LAYLIS 1.15

1 Fududee midkastoo kuwan soo socda ah:

b (20 + 16) ÷ 12 + 4 **t** 21 – 15 ÷ 5 × 5

j 6 + (19 – 9) – 10 **x** 39 – 19 = (18 - 9)

kh 15 × 4 – 10 ÷ 2 + 10 – 27 + 9 **d** (88 + 8) × (88 – 8) + 8 × 8.

2 Ku samee bilaha ama qawsaska meesha ku habeen markaana tibaaxdu waxa ay leegtahay jawaabaha lagu siiyay.

b 43 + 7 × 2 jawaab = 100 **t** 4 × 9 – 2 jawaab = 28

j 8 + 9 – 2 × 4 jawaab = 36 **x** 15 – 13 – 8 × 3 jawaab = 0

kh 8 × 3 + 2 × 2 jawaab = 80.

1.2.5 DHUFSANAYAASHA IYO ISIRADA (QAYBSHA YAALKA) TIROOYINKA IDIL

Hawlgalka 1.13

Ka fikir!

1 Waa noocma tirooyinka lagu tibaaxi (qeexi, ama cadayn) karo tibixda 2n, oo n ay u taagan tahay tiro idil?

2 Tibaax 27, 81, 243, 333 iyo 12351 sida 3n, oo sheeg qiimaha “n” ee xaalad kasta.

3 Qor midkastoo tirooyinka soo socda ah, 65, 75, 95, 80, 200, 160, 155, sida 5n, oo “n” ay tahay tiro kasta oo idil? Raadi qiimaha “n” ee xaalad kasta?

Dhufsanayaasha b oo ah tiro idil oo aan eber ahayn waa tirooyinka qaabkan oo kale ah b x n, halkaas oo n = 1,2,3,----------
Haddii c = a x b, markaa waxaan odhan karnaa "c" waa dhufsanaha a iyo b sidoo kale a iyo b waa qaybshayaalka ama isirada "c".

Tusaale.1: Qor lixda dhufsane ee ugu horeeya ee 14.

Furfuris: lixda dhufsane ee ugu horeeya ee 14 waa 14, 28, 42, 56, 70 iyo 84.

Tusaale 2: Qiimaha halkii qalin waa 3birr. Haddii aad doonaysid inaad iibsato 12 qalin, intee lacag ah ayaad u baahan tahay?

Furfuuris: Buuxi shaxda hoose ilaa aad helayso qiimaha 12 qalin. Waxaad u baahan tahay xaddi lacag ah oo dhufsane u ah 3, waxayna lamid tahay 3x12 = 36birr.

Tirada Qalimada	1	2	3	---------	12
Wadarta kharashka	3	6	9	---------	36

Tirooyinka 3, 6, 9, …, 36 waxaa layidhaa waa dhufsanayaasha 3, waxaynu u baahanahay dhibcahan …, si aynu u muujino in habyaalka dhufsanayaashu ay sii socdaan ilaa iyo inta tirada ugu danbaysa la helayo. Sidaasi darteed qiimaha 12 qalin waa 36birr.

Haddii ay "b" tahay tiro kasta oo tiro idil ah oo aan eber ahayn, waxaad u fiirsataa hadhaaga marka aynu isku qaybino bn ama nb iyo b, hadhaagu waa **0**, qaybtuna waa "n". taa macnaheedu waxa weeyi marka tiro idil oo "c" ah loo qaybiyo tiro idil oo "b" ah, haddii uu noqdo eber, markaa 'c" waa dhufsanaha 'b', oo 'b', na waa qaybshaha ama isirka c.

Tusaale 3: 7 miyay qaybshe u tahay 175? Maxaa kaloo lagu gabagabayn karaa tan?

Furfuris: Waxaanu isku qaybin 175 iyo 7, waxaynu helnay 25, oo ah qayb; iyo hadhaagii oo eber ah. Sidaasi darteed,

$$
\begin{array}{r}
25 \\
7\overline{)175} \\
-14 \\
\hline
35 \\
-35 \\
\hline
00
\end{array}
$$

7 waa qaybshaha 175, sababtoo ah hadhaagu waa eber. Ogow sidoo kalena 25 waa qaybshaha 175, sidaas darteed 175 waa dhufsanaha 7 iyo 25.

Tusaale: 234 ma dhufsanaha 4 baa?

Furfuris: maya, sababtoo ah markay iskuqaybino 234 iyo 4, hadhaagu waa 2, kaasi oo aan eber (0) ahayn.

$$\begin{array}{r} 58 \\ 4\overline{)234} \\ \underline{-20} \\ 34 \\ \underline{-32} \\ 02 \end{array}$$

LAYLIS 1.16

1 Maxay isuqaybinta hoose kuu sheegaysaa? tiradee baa dhufsane ah? Keebaa qaybshe (isir) ah?

$$\begin{array}{r} 16 \\ 3\overline{)48} \\ \underline{-3} \\ 18 \\ \underline{-18} \\ 00 \end{array}$$

2 Tax shanta dhufsane ee ugu horaysa mid kasta oo tirooyinkan ah.

b 7 **t** 8 **j** 12 **x** 35

3 Tax dhufsanayaasha 3 ee u dhexeeya 40 iyo 50.

4 Qor dhufsanaha 6 kaas oo ugu dhaw mid kasta oo kuwan soo socda ah.

b 10 **t** 20 **j** 35 **x** 65

5 6957 ma dhufsanaha 3 baa? Waayo?

6 9 ma qaybshaha 7596 baa? waayo?

7 Tax u qaybshayaalka mid kastoo tirooyinkan ah.

b 40 **t** 81 **j** 256 **x** 147

8 Kee baa tirooyinkan soo socda 4 uu u yahay qaybshe: 12, 17, 20, 29, 36, 456, 50, 52?

9 Anu waxaan ahay tiro dhaban oo, 50 ka yar, laba ka mid ah qaybshayaalkaygu waa 7 iyo 3; anu tiradee baan ahay?

1.2.6 JIBBAARADA TIROOYINKA IDIL

Hawlgalka 1.14

1 Ma u qori kartaa $2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2$, habkeeda gaaban?

2 Maxaad qabanaaysaa markaad tiro isku dhufato iyada lafteeda uun marmar badan, sida 10 jeer ama 200 jeer.

3 Fududee kuwan soo socda:

b $2^3 \times 2^3$ **t** $\frac{3^4}{3^2}$

marka tiro idil oo "m" ah la iskudhufto iyada lafteeda "n"jeer, halkaasoo "n" aanay ahayn eber, markaa waxaan nidhaahnaa natiijadaasi waa jibbaarka "m", waxaana loo qoraa "m^n".

Tibaaxda $m^n = m \times m \times m \times m$ --------- $\times$ m(n^{-na} waa isirada).

Tibaaxda "m^n" m, waxaa layidhaa salka n^- waxaa la yidhaahdaa jibbaar, m^n waxaa la yidhaahdaa tibax algebra.

Tusaale: 128 u qor qaab tibaax algebra oo u salkeedu yahay 2.

Furfuris: $128 = 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 = 2^7$

2^7 waxaa loo akhriyaa $\Rightarrow$ 2 ku jibbaaran 7 ama $\Rightarrow$ 2 la saaaray 7"

Tiro kasta oo idil oo "m" ah oo aan eber ahayn, $M^o = 1$.

Waan isku dhufan karnaa waanan iskuqaybin karnaa tibaaxaha aljabreed ee salalkoodu ay isku midka yihiin,

Tusaale 2: fududee kuwan soo socda.

b $5^4 \times 5^3$ **t** $\frac{2^5}{2^3}$

Furfuris:

b $5^4 \times 5^3 = (5 \times 5 \times 5 \times 5) \times (5 \times 5 \times 5) = 5 \times 5 \times 5 \times 5 \times 5 \times 5 \times 5 = 5^7$

$= 5^{4+3}$

Sidaasi darteed, $5^4 \times 5^3 = 5^{4+3}$.

Guud ahaan waxaynu haynaa $a^n \times a^m = a^{n+m}$. halkaas oo "a" ay tahay tro idil oo aan eber ahayn oo "m iyo "n" ay yihiin tirooyin idil.

t $\frac{2\times2\times2\times2\times2}{2\times2\times2}=\frac{2}{2}\times\frac{2}{2}\times\frac{2}{2}\times2\times2$

$=1\times1\times1\times2\times2=2\times2$

$2^2=2^{5-3}$

$a^n/a^m = a^{n-m}$, m iyo n waa tirooyin idil, $n \geq m$ oo "a" na ay tahay tiro idil oo aan eber ahayn.

LAYLIS 1.17

1 Qor taranta soo socota adiga oo isticmaalaya habka jibbaarka.

b $5\times5\times5\times5\times5\times5\times5\times5\times5$

t $8\times8\times8\times8\times8\times8\times8.$

2 Jibbaar kasta u qor sida taranta isiro isle'eg

b 3^4 **t** 10^6 **j** 7^2

3 Waa maxay tirada aan ahayn, haddii aan ahay jibbaarka 2, ee u dhaxaysa 50 iyo 70?

4 Waa maxay tirada aan ahayn, haddii aan ahay jibbaarka tiro u dhaxaysa 36 iyo 60?

5 Fududee kuwan soo socda.

b $3^2\times3^5$ **t** $7^1\times7^6$ **j** $5^3\times5^3$

x $\frac{2^8}{2^5}$ **kh** $\frac{10^7}{10^3}$ **d** $\frac{3^4}{3^4}$

DH.Y.W IYO I.W.W.ee tirooyinka idil

Dhufsana yaraha ay wadaagaan (DH.Y.W) tirooyinka idil

Hawlgalka 1.15

1 Raadi qaar ka mid dufsanayaasha 2.

b Raadi qaar ka mid ah dhufsanayaasha 3.

t Tax dhufsanayaasha ay wadaagaan 2 iyo 3.

j waa maxay tirada ugu yar ee ku jira dhufsanayaasha ay wadaagaan laba tiro?

Dhufsane yaraha ay wadaagaan (DH.Y.W.) laba tiro ama in ka badan waa tirada ugu yar ee ku jirta dhufsanayaasha ay wadaagaan tirooyinka la siiyay.

Si loo helo DH.Y.W laba tiro oo tirooyinka idil ah, raac talaabooyinka soo socda:

1. Tax dhufsanayaasha labada tiro.
2. Dooro dhufsanayaasha ay wadaagaan.
3. Ka ugu yar dhufsanayaashaasi ay wadaagaan ayaa ah DH.Y.W.

Tusaale: Raadi DH.Y.W, 8 IYO 24.

Fur-furis:

Dhufsanayaasha 8 waa ;8,16,24,32,,40,48,56,64,72----------.

Dhufsanayaasha 24 waa; 24, 48, 72----------.

Dhufsanayaasha ay wadaagaan waa 24,48,72.

Dhufsane u yaraha ay wadaagaan waa 24.

Sidaasi darteed DH.Y.W.8 iyo 24 waa 24.

DH.Y.W. saddex tiro oo tiro idil ah sidaasi ayuunbaa loo xisaabin karaa.

I.W.W. (isir waynaha ay wadaagaan) tirooyinka Idil

Hawlgalka 1.16

1. Raadi isirada 12 iyo 18.
2. Raadi isirada ay waagaan 12 iyo 18.
3. Waa maxay isirka ugu wayn ee ay wadaagaan 12 iyo 18.

Isir waynaha ay wadaagaan (I.W.M) laba tiro ama in ka badan oo tirooyinka idil ah waa tirada ugu wayn ee idil ee ku jirta isirada ay wadaagaan tirooyinka lagu siiyay.

Si loo IWM laba tiro oo idil raac tallaabooyinkan soo socda:

1. Raadi dhammaan isirada labada tiro.
2. Raadi isirada ay wadaagaan.
3. Ka dooro tirada ugu wayn isirada ay wadaagaan kaas oo ah IWM, labada tiro.

Tusaale 4: Raadi isir waynaha ay wadaagaan 18 iyo 24

Isirada 18 waa 1,2,3,6, 9 iyo 18.

Isirada 24 waa 1,2,3,4,6,12 iyo 24.

Isirada ay wadaagaan 18 iyo 24 waa 1,2,3, iyo 6

Isirka ugu wayn ee ay wadaagaan 18 iyo 24 waa 6.

Waxaynu u qornaa IWM (18, 24) = 6.

LAYLIS 1.18

1 Raadi DH.Y.W ee kuwan soo socda:

b 12 iyo 15 **t** 6 iyo 9 **j** 8 iyo 12 **x** 8,9 iyo 12,

2 Raadi IWW kuwan soo socda:

b 4 iyo 6 **t** 5 iyo 30 **j** 12 iyo 20.

Erayada Furaha ah

- Tiro idil
- Tirooyinka dhabanka iyo kisiga ah ee tirada idil
- Jibbaarada tirooyinka idil
- DH.Y.W, iyo IWM ee tirooyinka idil oo lagu siiyay.
- Ka horeeyaha iyo ka dambeeyaha tiro idil.
- Qaybshe isir, dhufsane ee tirooyinka idil.
- Salka, tirada jibbaarka ah.

Soo koobida cutubka 1

tiro kasta oo tiro idil ah waxay leedahay hal god ama wax ka badan, god kastaana waxaa uu buuxiyaa meel, waynu akhrinaa tirooyinka, inagoo adeeg sanayna meelaha uu god kastaa ka buuxiyo ama uu yaalo qiimaha meesha uu god kastaa buuxiyo ama uu yaalo ee tiro ayaa waxaa loo yaqaanaa qiimo rugeed.

Tusaale:

b tirada 51,676 waxaa loo akhriyaa konton iyo kow kun lix boqol todobaatan iyo lix.

t 195,675, waxaa loo akhriyaa boqol iyo sagaashan iyo shan kun lix boqol iyo todobaatan iyo shan.

Horsanaanta Tirooyinka idil:

Xisaabta, calaamado ayaa loo isticmaalaa si loo muujiyo xajmiga tirada la barbardhigayo ta kale. Calaamada haasi waxay yihiin < (ka yar), > (ka wayn) iyo = (waxay le'eg tahay).

1 Haddii ay labada tiro leeyihiin godad isku mid ah, isbar-bardhig godadka ugu ahmiyada badan ee tirooyinka oo qaado ka ugu godka wayn leh. Haddii godadka ugu ahmiyada badan ee labada god ay isku mid yihiin, isbarbardhig labada god ee kale ee ku xiga oo markaa go'aami adoo eegaya. Ku celceli hanaanka ilaa inta aad helayso laba god oo kala duwan oo isku god rugeed ah.

2 Haddii ay labada tiro ay leeyihiin tirooyin godad ah oo kala duwan, markaa midka ugu godka wayn leh ayaa ka wayn ka kale.

Ka horeeyaha iyo ka dambeeyaha Tirooyinka Idil:

Tirada idil ee ka yar ta kale oo tiro idil ah hal kaliya waa ka horeeyaheeda sidoo kale, tirada idil taasi oo ka wayn hal ku kale oo tiro idil ah markaa waa ka dambeeyaheeda.

- ✓ Tira kasta oo tiro idil ah "n" waxay leedahay ka dambeeye kaasi oo la mid ah n+1.
- ✓ Tiro kasta oo tiro idil ah "n" oo aan ahayn eber waxay leedahay ka horeeye kaasi oo ah n-1.
- ✓ Ma jiro tiro ugu wayn oo tiro idil ah, maadaama tiro kasta oo idil "n" ah ay leedahay k oo la mid ah n+1.
- ✓ Eberku waa tirada ugu yar tirooyinka idil, sidaasi darteed ma laha ka horeeye kaasi oo tiro idil ah.

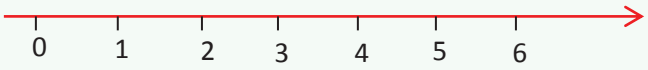
Habka fidinta ee tirooyinka Idil :

Tibaaxida wadaraha taranta godadka tiro ee kubeegan qiimo rugeedyada ayaa waxaa loo yaqaanaa ku tibaaxida tirada habka kala bixinta.

Tusaale: Habka kala bixinta ee 4827 waxaa loo qoraa sidan:

$4 \times 1000 + 8 \times 100 + 2 \times 10 + 7 \times 1.$

Falaada tirada:



Fallaadha tirada dusheeda tirada idil had iyo jeer waxay ka yar tahay tira kasta oo xagga midig ka xigta.

Tiro kasta oo idil oo aan eber ahayn waxay had iyo jeer ka wayn tahay tiro kasta oo bidix ka xigta.

Tirooyinka Dhabanka ah iyo Tirooyinka Kisiga ah:

- ✓ Tirada idil ee u qaybsami karta 2, hadhaa la'aan waxaa la yidhaahdaa tiro dhaban.
- ✓ Tiro idil waa kisi haddii aanay dhaban ahayn.
- ✓ Wadarta laba tiro oo dhaban ahi waa dhaban, taasi oo ah dhaban + dhaban = dhaban.
- ✓ Wadarta laba tiro oo kisi ahi waa dhaban, taasi oo ah kisi + kisi = dhaban.

Isugaynta iyo kalagoynta tirooyinka idil

Iskugayntu waa hanaan xisaabeed la isugu daro walxaha, waxaynu isku darnaa tirooyinka idil ee “m” iyo “n” inagoo tirinayna inta “n” tahay, kadib “m”, ee fallaadha tirada dusheeda. Taasi oo u gudbaysa tirooyinka idil ee m + 1, m + 2, m + 3 …

Waxaynu gaadhaynaa oo aynu istagaynaa m+n. sidaasi darteed m+n waa wadarta m iyo n.

Astaamaha isugaynta:

- ✓ Wadarta laba tiro oo idil waa tiro idil, astaantan waxaa la yidhaa astaanta oodnaanshaha iskugaynta.
- ✓ Astaanta kala hormarinta ee iskugaynta: a iyo b haddii ay yihiin laba kasta oo tiro idil ah
- ✓ Astaanta hormo galinta ee tirooyinka idil: a, b iyo c oo ah saddax kasta oo tirooyin idil ah

Kala goynta Tirooyinka idil:

- ✓ Kalagoyntu waa bixinta, kharash garaynta ama ka qaadida, waxogaa xaddi ah, haddii a iyo b ay yihiin tirooyin idil, halkaas oo a > b dabadeedna a – b = c, markaa “c” waa tiro idil waxaana la yidhaahdaa faraqa “a” iyo “b”, haddii a – b = c, markaa a = b + c oo a iyo b ay yihiin tirooyin idil, halkaas oo a > b.

Isudhufashada Tirooyinka Idil:

- ✓ Isku dhufashadu had iyo jeer waxbay badisaa, laakiin waa hab deg- deg badan hadii n iyo m ayihiin tirooyin idil markaa

Astaamaha Iskudhufashada:

astaanta kala dhiga a + b = b + a

a + (b + c) = (a + b) + c

- ✓ Astaanta asalmadoorshaha ee eber:

A + 0 = 0 + a = a, oo ‘a’ ay tahay tiro kasta oo idil

m × n = n + n + ----- + n (m jeer) ama m + m + -------- + m (n jeer).

a × b = b × a.

- ✓ astaanta hormogalinta iskudhufashada.

  $(a \times b) \times c = a \times (b \times c)$, halkaas oo a, b iyo c ay yihiin tiro idil,

- ✓ astaanta kala hormarinta iskudhufashada ee tirooyinka idil.
- ✓ iskudhufashada ee iskugaynta.

  $a \times (b + c) = a \times b + a \times c$, halkaas oo a, b, c ay yihiin tirooyin idil.

- ✓ Haddii "a" tahay tiro idil, markaa $a \times 0 = 0$.
- ✓ $a \times 1 = 1 \times a = a$, oo "a" ay tahay tiro kasta oo idil.
- ✓ Iskuqaybinta tirooyinka idil.
- ✓ Isku qaybintu waa qaybta shay lagu siiyay si isleeg.
- ✓ Iskuqaybintu ma noqoto kala hormarin iyo hormo galin midna.

Fur-furista tibaaxaha leh dhawr calaamadood:

haddii ay tibaaxdu leedahay hal calaamad ah wax kabadan, sida iskugaynta, kala goynta iskudhufashada iyo iskuqaybin markaa waxaynu raacaynaa nidaamkan hoose si aynu u fududayno tibaaxda.

> Marka hore ka shaqee kuwa ku jira qawska, haddii uu wax qaws ahi jiro.
> Marka labaad, ka shaqee isku qaybinta iyo isku dhufashada sida ay u kala horeeyaan. Marka saddexaad, ka shaqee isugeynta iyo kala goynta siday u kala horeeyaan.

Ka soo qaad in "a" ay "b" ay yihiin tiro idil oo aan eber ahayn, markaa haddii $c = a \times b$,markaa waxaaan odhanaynaa 'c" waa dhufsanaha a iyo b oo markaana "a" iyo "b" waa u qaybsanayaasha ama isirada "c".

Dhufsanayaasha aan eber ahayn ee tirooyinka idil ee "b" waa qaabkani bxn, halkaasoo n = 1, 2, 3 ---------. Tiro idil oo kasta oo aan eber ahayn oo "b" ahayn oo 'b' ah, waxaa laga yaabaa inaad aragto in hadhaagu uu eber yahay markaynu isku qaybino $b \times n$ iyo b, oo qaybtuna ay noqoto n . taa macnaheedu waxa weeyi haddii hadhaagu yahay eber markaas la isku qaybiyo laba tiro oo idil ee 'c' iyo 'b', markaa 'c' waa dhufsane 'b' oo 'b' duna waa isirka 'c'.

Jibbaarada Tirooyinka Idil:

Marka tiro idil iyada lafteeda la isku dhufto. n jeer, halkaasi oo 'n' ay tahay tiro idil oo aan eber ahayn, markaa waxaan odhanaynaa natiijadu waa jibbaarka m, waxaana loo qoraa m^n waana jibbaarka m.

Tibaaxda m^n, "m" waxaa layidhaa salka "n" waxaa layidhaahdaa tirada ku jibbaarkan "m^n" waa tibaax aljebraad.

Waynu isku dhufan karnaa oo aynu isku qaybin karnaa jibbaarada salalkoodu isku midka yahay.

Isku dhufashada iyo isku qaybinta jibbaarada:

Guud ahaan waxaynu haysanaa $a^n x a^m = a^{n+m}$, halkaasoo 'a' ay tahay tiro idil oo aan ahayn eber m iyo n ay yihiin tirooyin idil.

$\frac{a^n}{a^m} = a^{n-m}$, m iyo n waa tirooyin idil,

n > m oo 'a' ay tahay tiro idil oo aan eber ahayn.

Dhufsane yaraha ay wadaagaan (Dh.y,w) ee tirooyinka idil:

Si loo helo dh.y.w, ee laba tiro.

- ✓ Hel dhufsanayaasha tirooyinka lagu siiyay.
- ✓ Ka dooro ka ugu yar dhufsanayaasha ay wadaagaan.

I.W.W. (Isir waynaha ay wadaagaan) tirooyinka idil:

Si loo helo I.W.W, laba tiro oo idil,

- ✓ Raadi dhamaan isirada (u qaybsanayaasha) ee tirada lagu siiyay.
- ✓ Raadi isirada ay wadaagaan.
- ✓ Ka dooro tiro tirada ugu wayn ee ku jirta isirada ay wadaagaan.

Laylis guud

1 Afar arday ayaa ka doortay qiimo rugeedka godad lagu qoray sabuurada.

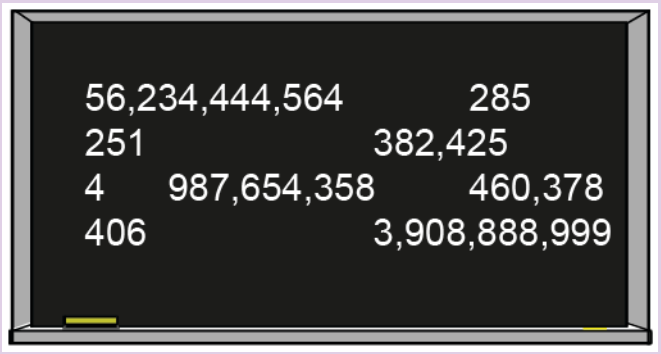
Xagan hoose: ku muuji tirooyinka uu arday kastaa doortay:

Abaadir: tiradaydu waxay kaga jiraa 11 god rugeed.

Caasha: tirada waxay kaga jirtaa 6 todobada godka kumaad.

Xasan: tiradan waxay leedahay 9 god rugeedka oo 3 boqlaad kun.

Waris: tirada maaha boqlaad iyo tobnaad.



2 U qor tirooyinka soo socda eray ahaan:

b 199,983 **t** 39,245 **j** 65

x 2,762 **kh** 89,991,1467

3 U qor kuwan soo socda tiro ahaan.

b sodon iyo laba kun iyo afar boqol

t afartan iyo afar

j shan kun iyo laba boqol iyo afartan iyo lix.

x shan milyan lix boqol oo kun laba boqol iyo sagaashan iyo sideed.

4 adeegso calaamadaha dheeliga < ama > inta u dhaxaysa lamaanayaashan soo socda:

b 373 __ 3730 **j** 67342159 ____ 673432159

t 887 _____ 8888 **x** 2456701235_____ 2456701234

5 god-dambeedkeeda, ku buuxi shaxda qiimayaasha maqan. Joog utaxa ugu dambeeya waa wadarta jiif utax kasta.

God-horaad			23,678,913		
Tirada oo caadiya	1,899,900	60,000,000			99,999,896
Tirada oo eray ahaan ah					
God-dambeedka				9,925,301	

6 ka shaqee isku dhufashadan soo socota.

b 398,345 × 576 **t** 5629 × 3728 **j** 32651 × 56984

7 Adeegso nadaamka calaamadaha oo ka shaqee kuwan soo socda.

b	$24 \div 4 + 2$	**t**	$14 \times 5 \div 5$
j	$(36 + 12) \div 4 + 2$	**x**	$36 + 12 \div (4 + 2)$
kh	$30 - 5 + 7$	**d**	$65 \times 4 - 4 + 3 \div 3$

8 **b** lix riyaad ayaa qiimahoodu yahay 2406 birr. Waa imisa qiimaha laba riyaad?

t Xamda waxay kharash garaysay 80 birr in ka badan inta Geedi uu kharash gareeyay. Wuxuu geedi kharash gareeyay 520 birr. Intee in le'eg oo lacag ah ayay kharash garaysay Xamda?.

9 Ali waa muhandis (Engineer) wuxuu rabaa inuu dhiso 100 dabaq oo midkiiba ka kooban yahay 200 guri. Guri kasta qiimihiisu wuxuu ku kacayaa 60,000 birr. Imisa lacag ah ayay tahay inuu ku maalgaliyo dhismaha ee 100 dabaq?

10 Waa imisa dadka ku nooli Afrika? Waa imisa tirada dadka ee dunida hadda?

11 Waa imisa masaafada u dhaxaysa dhulka iyo Satarka?

12 Imisaad jirtaa? Dhulkuna imisuu jiraa?

13 Ciyaarihii olambikada ee Moscow, ayaa Mirutse yifter, wuxuu orday masaafadan soo socota.

1aad 10,000 mitir

2aad 5,000 mitir (qiimaynta)

3aad 5,000 mitir (ugu danbayntii)

Waa imisa kiiloo mitir?

14 Yadlaha tukaan wayn ayaa wuxuu ku diwaangaliyay dakhliga soo galo shan cisho oo isku xiga sida shaxdan hoose lagugu siiyay. Raadi dakhliga todobaad kasta ee tukaanka.

Shax 2

maalinta	isniin	salaasa	Arbaca	khamiis	jimce	Wadarta todobaadkii
dakhliga	5000	39200	10800	43800	54600	?

15 **b** 2845 + 6437 + 4095

t 1934 + 2888 + 2642

j 8305 + 97,446 + 28,943,261 =

Isku dar tirada dadka ku nool Gobolada kala duduwan ee Itoobiya ee shaxdan hoos ku qoran:

Diridhaba	Gambela	Harar	Oromiya	Somalii	Adisababa	Tigray	Canfar	Amhara	Bini shan gul	Dhabuub xisboj
342,827	306,916	183,344	27,158,471	4,439,147	2,737,248	4,314,456	17,214,056	17,214,056	670,847	15,042,531

16 Nin beeralay ah ayaa leh 2800 sac, 100 faras, 800 dibi iyo 4000 riyaad. Raadi tirada xoolaha uu haysto ninka beeralayda ahi?

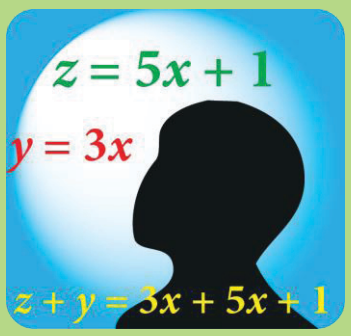
17 Fududee kuwan soo socda:

b $2^3 \times 2^8$ **t** $7^3 \times 7^2$ **j** $5^3 \times 5^4$

18 Raadi dh.y.w tirooyinkan soo socda:

b 3 iyo 5 **t** 8 iyo 12 **j** 9 iyo 15.

Cutubka 2aad



ADEEGSIGA (KU SHAQAYNTA) DOORSOOMAYAASHA

UJEEDDOOYINKA CUTUBKA

Dhamaadka cutubkani waxaad awoodi doontaan inaad

- *U badashaan hawraaro xisaabeedyada fudud, tibaaxo xisaabeedyo.*
- *Kala sooci kartaan tibxo iyo tibaax xisaabeedyo*
- *Fududeeysaan qiimayaasha la siiyay ayagoo isku ururinaya tibaaxaha isku midka ah.*
- *Xisaabiysaan qiimayaasha tibxaha iyo tibaaxaha xisaabeed ayagoo ku salaynaya inta tibaaxood ee ay ka kooban yihiin.*
- *Kala saartaan isleegyo iyo dheeliyo.*
- *Go'aamisaan xalalka suurto galka ah ee isleeg lagu siiyay ay kuu leedahay tirooyin legu siiyay.*
- *U qortaan masalo fudud oo weedh xisaabeed qaab isleeg ama dheeli.*

TUSMOOYINKA MUHIIMKA AH

HORDHAC

Waxaan isticmaalaa doorsoomayaal inta badan meelkasta oo xisaabta ka mid ah iyo saynisyada kaleba sidoo kale, xisaabta doorsoomayaashu waxay u taagan yihiin tirooyin aan la garanayn

Sanadkan waxaad baran doontaa waxyaalo ku saabsan madoor soomayaasha, doorsoomayaasha iyo sida laysugu daro ayadoo la isticmaalayo xisaab fallada "+" "–" "×" iyo sida loo sameeyo masalooyinka iyadoo la isticmaalayo qiime – xisaabeedyo, isle'egyo iyo dheeliyo. Waxa kaloo ku baran sida looga raadiyo xalalka isleegyada iyo dheeliyada qiimayaal iyo tirooyinka lagu siiyay.

2.1 TIBXAHA IYO TIBAAXAHA AL-JABRAAD

2.1.1 TIBXAHA AL-JABRADA IYO QIIMAHA TIBXAHA

Hawlgalka 2.1

1 Waxoogaa lacag ah ayaa ku dhex jirta jalxadan (eeg sawir 2.1). Caasha waxay ku dartay 5birr Imisa lacag ah ayaa hadda jalxada ku jirta?

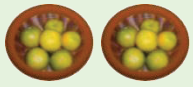
Waxaad ka soo qaadaa in lacagta jalxada ku dhex jirtaa ay tahay m. Caasha waxay ku dartay 5birr jalxada, sidaas darteed waxaa ku jira jalxada m+5birr. Hadda shaxda soo socota sidaa si la mid ah u buuxi.

Sawir 2.1

Lacagta jalxada lagu daray =b	B = 2.00	B = 8.00	B=10.00	B=50.00	B=100	B=200
Wadarta lacagta jalxada ku jirta waxa weeyi m+b	M+2.00	M+8	M+10	M+50	M+100	M+200

2 Kuwani waa liimo. 1kg ee liinta ah qiimahiisu waa 10.00 birr.

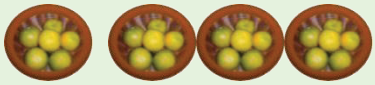
hal kg oo liin ah waa 1 × 10.00 = 10.00birr.



laba kg oo liimo ah qiimahoodu waa 2 × 10.00 = 20.00birr

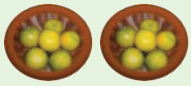
sadex kg oo liimo ah qiimahoodu waa 3 × 10.00 = 30.00birr.

Hadda, waa markaagii inaad buuxiso meelaha bannaan.

b  afar kg oo liimo ah qiimahoodu waa _ birr

t  shan kg oo liimo ah qiimahoodu waa _____ birr

3 haddii qiimaha hal kg oo liin ahi uu yahay x birr, dabadeed _____,

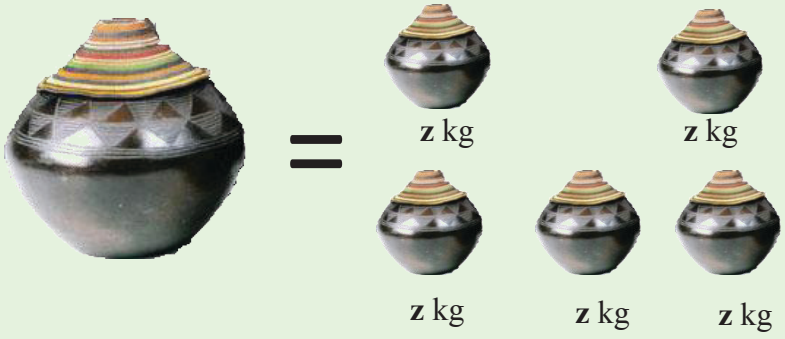
b  laba kg oo liimo ahi qiimahoodu waa _____ birr.

t  saddex kg oo liimo ahi qiimahoodu waa _____ birr.

j  qiimaha tiro kasta oo kg oo liin ahi wuxuu la mid yahay tirada (salada ay ka buuxdo liin) kg X qiimaha hel kg oo liin ah. Waxaa ku jira salada Y kg oo liin ah.Waa imisa qiimaha liinta salada ku jirtaa fiiri sawirka 2.4

x _____ haddii saladu ay qaado y kiiloo oo liin ah. Halkii kilo ee liin ahna qiimahiisu yahay 12.00birr, dabadeed qiimaha liinta salad ku jirtaa waa _____ .

4 Fiiri dhiilahan soo socda: waxaa jira mid wayn iyo shan yar-yar oo dhiilood, shaxanka (sawirka 3). Baaxada dhiisha wayni waxay shan jeer ka wayn tahay ta yar.Dhammaantoodna waxaa laga buuxiyay burcad (subag).



b Haddaan isu-darno (gayno) dhammaan subaga shanta dhiilood ku jira, xaddiga subaga ahi wuxuu le'eg yahay inta ku jirta dhiisha wayn. dhiil yar oo kastaa waxay qaadi kartaa zkg oo subag ah. Imisa kg oo subag ah ayay dhiisha wayni qaadaa?

t imisa ayuu qiimaha subaga dhiisha wayn ku jiraa noqon karaa, haddii ka dhiisha yar ku jira qiimihiisu yahay 10.00 birr oo kaliya?

qiime waa tiro
- ✓ doorsoome waa summad qaata qiime
- ✓ ma-doorsoome waa summad leh qiime go'an.

Tusaale 1: hawlgalka 2.1 qiimaha hal kg oo liin ahi waa 10.00, waana tusaale madoorsoome

Tusaale 2: tirada kg ee liimaha ee ku jira salada dhexdeeda (fiiri sawirka 2.4)lama yaqaan sidaas darteed xarafka Y ama xarafkasta oo kale waa loo isticmaali karaa si uu ugu taagnaado culeyska liinta ku jirta salada halka Y, waxaa loo isticmaalaa doorsoome ahaan.

Tusaale 3: waxaan ka fikirayaa tiro, waa maxay tirada la helayaa haddii, aad u gayso 7 tirada?

Furfuris: tirada aan ka fikirayaa waa x u gee 7 tirada $x + 7$. tirada aan ka fikirayay oo loo geeyay 7 waa $x+7$

Tusaale 4: Cali aabihii shan jeer ayuu ka dheer yahay inantiisa.

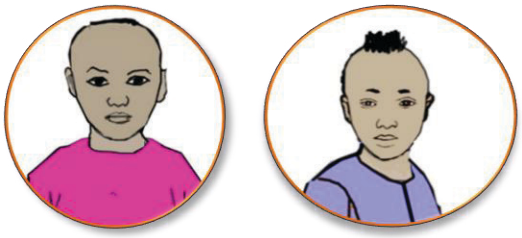
Furfuris: dhererka Cali aabihii waa hcm, ku dhufo shan oo ah $5 \times h$.

5y waa hab loo soo gaabiyo qorida 5 x y.

Tusaale 5: jidka ka yimaada gurigayga ee taga inantaydu dugsiga ay dhigaataa, todoba jeer ayuu ka fog yahay ka ka yimaada gurigayga ee taga xafiiskayga oo waliba loo geeyay hal km. qor tibaaxo xisaabeedka sharaxaya fogaanta u dhaxaysa gurigayga iyo Dugsiga.

Furfuris: ka soo qaad fogaanta u dhaxaysa guriga iyo xafiiskayga in ay tahay z markaa.

7z +1 waa fogaanta u dhaxaysa gurigayga iyo inantayda dugsigeeda.



Cali Cabdi

Sawir 2.2

LAYLIS 2.1

1. Fiiri Cali iyo Cabdi sawirka 2.2 Cali 10cm ayuu ka gaaban yahay Cabdi. Haddii aynaan garanayn dhererka Cali inta uu yahay, sideen u tilmaami karnaa Cabdi dhererkiisa?

Haddii Cali dhererkiisu yahay tiro aan la garanayn oo ah hsm, dabadeed Cabdi dhererkiisu wuxuu noqon doonaa h -10cm. cabdi wuxuu noqon doonaa 65 – 10 = 55cm, hadda waa markaagii aad u buuxin lahayd shaxankan sida tusaalaha ka muuqata.

Haddii dhererka Cali yahay	h	55sm	65sm	75sm	100sm	120sm
Dabadeed Cabdi dhererkiisu wuxuu noqon	h+10	55 + 10=65sm				

2 Buuxi shaxda soo socota adoo ka fikiraya in aan ka cuslahay laba jeer, culayska gabadhayda, tusaale ahaan shaxda lagugu talogalay.

Haddii Culayska gabadhaydu yahay W	w	45kg	55kg	65kg	70kg	80kg
Dabadeed culayskaygu wuxuu noqon doonaa	2W	2 × 45 =90kg				

3 ku buuxi shaxdan soo socota sawirada lagugu siiyay shaxanka 6 iyo wadarta ku saabsan (macluumaadka).

b _____

1kg oo basal ah qiimaheedu waa 7.00birr

Basasha oo lagu cabbiray kg	1kg	2kg	5kg	Ykg
Qiimaha kg kiiba				

t _____

1kg oo yaanyo ah qiimahiisu waa 8.00birr.

Yaanyo lagu iibiyay kg	1kg	2kg	5kg	Ykg
Inta birr ee qiimuhu yahay	8.00birr			

j

Basalo iyo yaanyo ku cabiran kg	1kg oo basal ah +1kg oo yaanyo ah	2kg oo basal ah + 3kgoo yaanyo ah	4kg oo yaanyo ah + 5kg oo basal ah	Ykg oo basal ah + 4kg oo yaanyo ah
Inta birr ee qiimuhu yahay	7.00+8.00 =15.00birr			

Hawlgalka 2.2

Waxoogaa odhaah ah xisaabeedyo aan badanaa isticmaalno ayaa hoos ku qoran. U badal tibaaxo xisaabeedyo, adigoo isticmaalaya doorsoomayaal, madoorsoomayaal iyo xisaab falo (+, -, ×), sidii aad samaysay casharkii hore oo kale.

1 Dhererkaaga oo lagu daray konton sm.

2 Culayskaaga oo laga jaray 20kg

3 Afar liin ah in ka badan intii hooyaday shalay soo iibisay.

4 Inta arday ee fasalkaaga ku jirta laban-laabkeed.

5 Dhererka Cali saddex laabkiisa oo lagu daray 5sm..

tibaax al-jabraad waa isu-taga ay isu-tagaan hal ama in ka badan oo madoorsoomayaal, doorsoomayaal iyo xisaab-falo.

Tusaale 6:

b madoorsoome kastaa waa tibaax Al-jabraad, tusaale ahaan 3 waa tibaax Al-jabraad.

t doorsoome waa tibaax Al-jabraad, tusaale Y waa tibaax aljabraad.

j ma doorsoome lagu dhuftay doorsoome waa tibaax aljabraad. Tusaale $5y$ waa tibaax aljabraa.

x doorsoome loo geeyay ma doorsoome waa tibaax aljabraad. Tusaale $y + 7$ waa tibaax aljabraad.

Kh doorsoome laga jaray ma doorsoome waa tibaax aljabraad, tusaale z-9 waa tibaax aljabraad.

d Madoorsoome lagu dhuftay doorsoome oo loo geeyay (ama laga jaray) ma doorsoome waa tibaax aljabraad, tusaale 6w + 9 ama 6w – 9 waa tibaaxo aljabraad

r wadarta laba ama in ka badan oo doorsoomayaal ahi waa tibaax aljabraad, tusaale; $x + 3y + 2z + w$ waa tibaax aljabraad oo leh 4 doorsoome.

Tusaale 7: waxaan u badali karnaa tibaax odhaaheedyada, tibxo aljabraad. Fiiri sida odhaah tibaaxeedyadu ugu taagan yihiin tibaaxyo aljabraad shaxdan dhexdeeda.

	Odhaah Erayeed	odhaah aljabraad
b	Laba	2
t	Da'daada oo laba sano lagu daray	a + 2, halka a ay u taagan tahay da'dooda
J	Toban sano kaa yar	u - 10,halka u tahay da'aada
X	Saddex lab intii jawaan ee qamadi ahaa ee aad soo saartay sanadkii hore	3k, halka k tahay tirada jawaan ee qamadi ah ee sanadikii hore aad goosatay
Kh	Shan jeer oo laga jaray saddex kaa culays badan.	5h- 3, h ay tahay culayskaaga.

Tusaale 8: U badal tibaaxahan aljabraad odhaahyo.

	Odhaah aljabraad	Odhaah Erayeed
b	100	Waxaan haystaa boqol ukun ah
t	$x + 5$	Caasha shan carruur ah ayay dheer tahay faadumo Halka X ay tahay carruurta Faadumo
j	$2z - 2$	Boorsadayda, dhexdeeda waxaan ku haystaa lacagtaad haysato laban laabkeed in laba kun ka yar, z waxay taagan tahay lacagta aad haysato

LAYLIS 2.2

1 U badal odhaah tibaaxeedyadan, tibaaxyo aljabreed.

- **b** Toban jeer ka culus baska yar.
- **t** 20 dhibcood ka badan inta C/qaadir keenay.
- **j** $8C^o$ ka qabaw intii ay ahayd maalintaydii dhalashada ee ugu dambaysay.
- **x** Cali wuxuu yimid 30 daqiiqo ka dib

2 u tibaax odhaah aljabreedkan odhaah erayeed.

b 10k **t** a + 20 **j** $t - 8$ **x** $y + 30$.

Tibxaha odhaahyada aljabraad ee fudud ama haltibxle fudud ee aljabraad ama ah hal- tibaaxayaal.

Hawlgalka 2.3

1 Mid kasta oo ka mid ah tibixaalayaashan soo socda tiri midkasta inta qaybood ee laysu geeyay.

b $x + 7$ **t** $2x + 3y + 5$ **j** 6

2 Tax qaybaha aad tirisay ee su'aasha 1aad b, t iyo j.

marka madoorsoomayaasha ama doorsoomayaasha laysku geeyo ama kalagooyo sida $x + y$ ama $x - y$, qaybaha aan ahayn "+" ama "- " waxaa la yidhaahdaa tibxaha tibixaalaha.

Tusaale 9: x iyo 7 ayaa laysku geeyay si ay inoo siiso tibixaalaha $x + 7$, sidaas darteed x iyo 7 waa tibxo ay leedahay tibixaalaha $x + 7$.

tibixaale aljabraad waxay ka samaysantaa hal ama in kabadan oo tibxo ah.

Tusaale 10: $x + 7$ waa tibixaale odhaah aljabraad taas oo ka kooban laba tibxood, doorsoomaha x iyo madoorsamaha 7,

$10y - 12$ waa tibaax aljabraad taas oo leh laba tibaaxood $10y$ iyo madoorsoomaha 12, sidaasoo kale tibaax aljabraad waxay yeelan kartaa hal tibaax.

5 iyo $2y$ waa tibaaxo aljabraad oo ka kooban hal tibix midkiiba.

Tusaale 11: tibixaalahan $2xy + 3yz + 9x - 2y$, wuxu ka kooban yahay afar tibixood, oo kala ah $2xy$, $3yz$, $9x$ iyo $2y$.

tibixda ma doorsoomaha ka horeeya doorsoomayaasha waxaa la yidhaahdaa weheliye (ama horgale).

Tusaale 12:

1 madoorsoomaha 5 waa weheliyaha (horgalaha) tibixda $5x$, x – na waa qaybta doorsoomaha ee tibixda $5x$.

2 sheeg horgalaha iyo qaybta doorsoomaha ah mid kasta oo ka mid ah tibxahan soo socda

i x **ii** $9\,x\,y$ **iii** $3\,x\,uz$.

Fur-furis:

	tibix	Weheliye (horgale)	Qaybta doorsoomaha ah
i	x	1	x
ii	$9\,xy$	9	xy
iii	$3\,xuz$	3	xuz

hal tibix waa nooc fudud oo tibix ka samaysantay taranta doorsoomayaal fudud iyo ma doorsoomayaal.

Tusaale 13:

b dhamaan tibixaalayaasha aan ku soo aragnay tusaalaha 12 waa haltibixyo.

t tibxahan soo socda ma aha hal-tibxaalayaal

i $\frac{3x}{y}$ **ii** $\sqrt{xy}$

Waayo i waa isu-qaybin taasoo aan laga ogolayn hal tibaaxlaha, ta labaad ii waxay leedahay xididka laba jibbaarane taas oo aan laga ogolayn hal tibxaalaha. Hal tibxaalaha tirooyinka iyo doorsoomayaasha waa laysku dhufan midba midka kale ama waxaa jiri kara ma doorsoome kaliya.

wadarta tibix waa tibxo.

Tusaale 14:

i $3x + 2$ waa labo tibxo, waayo, tibxihiisu waa laba, waana, $3x$ iyo 2

ii $2x + 3y$ waa laba tibixo, waayo waxay ka samaysan tahay laba haltibxood $2x$ iyo $3y$.

iii $3\frac{x}{y} + 7$ ma'aha laba tibixo waayo $\frac{3x}{y}$ ma'aha haltibix.

iv $x + y + z$ ma'aha laba tibxaale waayo, waxay ka kooban tahay saddex tibixood dabadeed saddex la mid ma'aha laba.

LAYLIS 2.3

1 Raadi tibxaha, horgalaha iyo qaybta doorsoomaha mid kasta oo ka mid ah tibixaalaha ku qoran qaybta koowaad ee joog u taxa shaxdan, b - da tusaale ahaan ayaa lagaaga shaqeeyay, t iyo j na sidaa si la mid ah uga shaqee.

	tibixaale	Haltibix	horgale	Qaybta doorsoomaha
b	$3xy + 2x + 3y$	$3xy$	3	xy
		$2x$	2	x
		$3y$	3	y
t	uv + 7v +5			
j	abc + 6c			

2 Mid kasta oo ka mid ah kuwan soo socda, sheeg ama caddee horgalayaasha iyo qaybaha doorsoomaha ee tibix kasta.

	tibxo	Qaabka ugu fudud	Horgalayaal	Qaybta doorsoomaha
b	$4.r.r$	$4r^2$		xy
t	$12z.z.z$	$12z^3$		x
j	$z.y.y.y$	zy^3		y
x	$a.b.c.d$	$abcd$		
kh	200	200		

3 Abuur (samee) laba tibix yada ugu badan ee aad samayn karto adigoo isticmaalaya haltibixyada $x\,y$, $3x$ iyo $5y$, tusaale ahaan $xy + 3x$ waa labatibix.

Hawlgalka 2.4

1 Bixi tusaalayaal laba tibixood oo qaybta doorsoomuhu isku mid tahay, laakiin horgalahooda kala duwan yahay.

2 Bixi tusaalayaal laba tibixood oo leh doorsoomayaal isku mid ah iyo horgali isku mid ah.

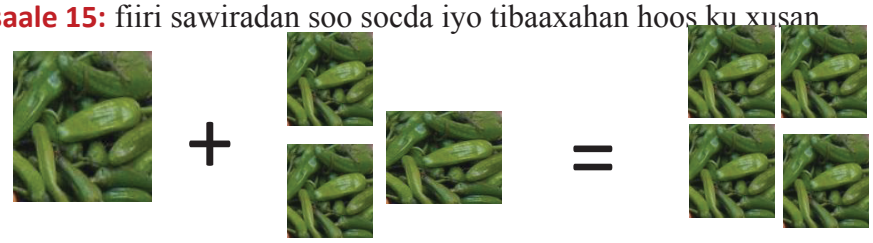
3 Bixi tusaalayaal tibxo leh, horgalayaal isku mid ah, laakiin qaybta doorsoomuhu kala duwan tahay.

4 Waa maxay wadarta laba miis iyo saddex miis?

5 Waa maxay wadarta saddex gabdhood iyo laba wiil? Ma waxay la mid tahay shan gabdhood mise shan wiil?

tibixaale ina lasiiyay dhaxdeeda waxaan isku gayn karnaa horgalayaasha tibxaha qaybtooda doorsoomuhu isku midka tahay si aan u yarayno tirada tibxaha ee tibixaalaha.

Tusaale 15: fiiri sawiradan soo socda iyo tibaaxahan hoos ku xusan.



1kg oo basbaas ah 3kg oo basbaas ah 4kg oo basbaas ah.

1kg basbaas ah 1kg oo yaanyo ah 1kg oo basbaas ah 1kg oo yaanyo ah

laba tibxo waxaa la dhahaa tibxo isku mid ah (ama tibxo isu'eg) haddii ay leeyihiin doorsoomayaal isku mid ah (jibbaarka iyo doorsoome ahaanba).

Tusaale 16:

b $6xy$, $9xy$ iyo $55xy$ waa tibxo isku mid ah waayo, waxay leeyihiin doorsoome isku mid ah lana mid ah xy.

t $3\ x\ z$ iyo $3xy$ waxay leeyihiin horgale isku mid ah, laakiin ma'aha tibxo isku mid ah, waayo qaybahooda doorsoomaha ahi waa xz iyo xy kaasoo kala duwan.

laba ama in ka badan oo ah tibxo isku mid ah waa la isku gayn karaa si ay u sameeyaan hal tibix.

3x iyo 7x waa tibxo isku mid ah $3x + 7x$ waa $10x$, waayo $3x + 7x = (3+7)\ x=10x$.

tibixaalaha marka hore waxaa laysugeeyaa waheliyayaasha (horgale) tibxaha isku mid ka ah ee tibixaalaha waxaa la dhahaa tibixaale la fududeeyay.

Tusaalaha 17:

1 Qaabka loo fududeeyo tibixaalaha $3x + 7x$ waa $10x$.

2 $6xy$ iyo $-5xy$ waa tibxo isku mid ah, sidaasi darteed tibixaalaha fududaysan ee ay u qorantaa $6xy - 5xy$ waa xy, waayo $6xy - 5xy = xy$

haddii tibixaale aanay lahayn tibxo isku mid ah, qaabka tibixaala heeda fududaysan waa tibixaalihii hore lafteeda.

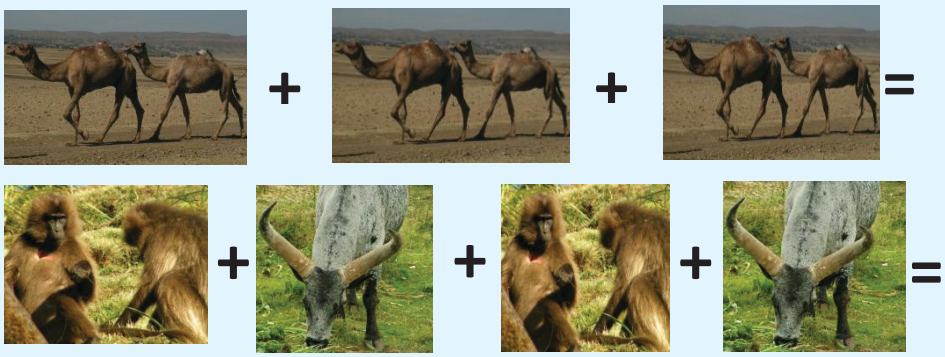
Tusaalaha 18aad: $3xy + 2xz = 3xy+2xz$, waayo $3xy$, $2xz$ ma aha tibxo isku mid ah, waayo?

LAYLIS 2.4

1 Qaabka loo fududeeyo 1kg oo basbaas ah + 1kg oo yaanyo ahi waa _____.

2 Qaabka loo fududeeyo 2gabdhood + 3wiil waa _____.

3



4 Laba Daanyeer + hal dibi + laba Daanyeer + hal dibi = _____.

5 2 wiil + 6 gabdhood + 5 wiil – 1gabadh = _____.

6 Qaabka ay u fududeeyaan $2x + 6y + 5x - y$ = _____.

2.1.2 QIIMAHA TIBAAXAHA FUDUD EE AL-JABRADA

Hawlgalka 2.5

1 Qaado tibixda $9y$, dabadeed ku badel doorsoomaha 1. Maxaad heshay?

2 Qiime maxay ah ayaad heli haddii aad qiimaha doorsoome ee tibaaxda $9y$ ku badasho 2?

3 Qaado tibaaxda $x + 9$ kuna badal x da 3 maxaad heshay?

4 Muxuu noqon qiimaha $x + 9$, haddii $x = 10$?

5 Qaado tibaaxda $2x + 1$ kuna badal doorsoomaha 5, maxaad heshay?

6 Maxaad heli haddii x aad ku badasho 0, su'aasha 5aad?

Marka doorsoomayaasha tibixda lagu badalo tirooyin go'an ee tibaaxdana la fududeeyo, waxay ina siisaa qiime tiro ah. Halka waxaa la dhahaa qiimaynta tibxaha ee qiimo tiro ahaaneed.

Tusaalaha 19: qiimee tibaaxdana $5q$ haddii q= 4.

Furfuris: q waxaa lagu badalay 4, dabadeed tibixda $5q$ waxay leedahay qiime la mid ah 5×4. Tan macnaheedu waa tibaaxda $5q$ waxaa lagu qiimeeyay haddii q = 4, qiimaheeduna waa 20.

Tusaalaha 20: qiimee tibaaxda $5q+3$ marka $q = 4$.

Furfurs: q waxaa lagu badalay 4, tibaaxda $5q + 3$. Dabadeed tibaaxda $5q + 3$, waxay leedahay qiime la mid ah $5 \times 4 + 3 = 23$. Tani macnaheedu waa tibaaxda $5q + 3$, waxaa lagu qiimeeyay marka $q = 4$, qiimaheeduna waa 23.

Tusaalaha 21: qiimee tibaaxda $2z$- 5 halka $z = 10$.

Furfuris: marka z lagu badalo 10, tibaaxdu waxay la mid noqon $2 \times 10 - 5 = 15$. Tani macnaheedu waa $2z - 5$ waxaa lagu qiimeeyay marka $z = 10$, qiimaheeduna waa 15.

LAYLIS 2.5

1 Fududee tibaaxda $5u - 3u + 8$, qiimeena marka

b $u = 7$ **t** $u = 0$

2 Ku buuxi tibix kasta qiimayaasha, dabadeedna ku qor qiimayaasha tiro-ahaaneed ee aad hesho jiiftaxa sida ka muuqata shaxdan hoose.

tibix	Qiimayaasha lagu siiyay ee doorsoomayaasha x,y iyo z	Qiimaha $8x + yz$
b	$x = 1, y = 3, z = 3$	$8 \times 1 + 3 \times 3 = 17$
t	$x = 1, y = 3, z = 5$	
j	$x = 2, y = 4, z = 5$	
x	$x = 0, y = 5, z = 7$	

3 Qiime mid kasta oo ka mid ah tibaaxaha ku jira jiiftaxa ugu horeeya ee shaxdan hoose adoo isticmaalaya qiimayaasha lagu siiyay kuna buuxi jiiftaxa 3aad.

	Tibaax	doorsoo mayaal	Qiimayaasha lagu siiyay	Qiimaynta lagu qiimeeyay qiimayaasha lagu siiyay.
b	$x + 2$	x	$x = 2$	
t	$3x + 5$	x	$x = 1$	$3 \times 1 + 5 = 8$
j	$2L + 2w$	L, w	$L = 2, w = 3$	
x	$x + y$	x iyo y	$x = 5, y = 2$	
Kh	$x + y + z$	x, y iyo z	$x = 2, y = 2$ iyo $z = 3$	$2 + 2 + 3 = 7$.

2.2 ISLEEGYADA IYO DHEELIYADA

Isleegyada iyo dheeliyada oo lagu furfuro ayadoo la isticmaalayo ku badalid. Miisaanka waxaa loo isticmaalaa si la isugu dheelitiro

Barbar dhigo culaysyada walxaha (alaabaha), markaad sonkor iibsanayso, dukaan iibiyuhu wuxuu dhigaa dhinac ka mid ah labada saxan ee miisaanka dhagax biro ah oo leh (culays go'an) dhinaca midigta ama dhinaca bidixda, dhinaca kalena wuxuu ku shubaa sonkorta ilaa ay dhererka labada dhinac ee miisaanku isle'ekaado oo uu joogsadana, dabadeed sonkorta ayaad qaadan isna wuxuu qaadan lacagta u dhiganta.

SHAQO KOOXEEDKA 2.1

Samee kooxo, dabadeedna ha ka doodaan waxayaalaha soo socda.

b arday ha waydiiyo kooxda inteeda kale su'aalaha i iyo ii iyo kuwo kale oo la mid ah halkan waxa ah labada su'aalood ee i iyo ii.

- **i** haddii labanlaabka lacagta ku jirta shandadi ay tahay 20birr, imisa lacag ah ayaa shandada ku jira? Isku day, adigoo ku badalaya mid kasta oo ka mid ah tirooyinkan 5, 8, 10, midkee ayaa weedhaada run ka dhiga?
- **ii** haddii saddex lagu dhufto tiro, dabadeedna loo geeyo 5 waxaa soo baxa 20, midkee ayaa tirooyinkan 2,3,5 ah tiradii aan rabnay?

t Intiina kale ee soo hadhay ha ka sameeyaan isleegyo aljabraad midkasta oo ka mid ah su'aalaha ardaygu idin waydiiyay, iskuguna xidh calaamada " = " lamid . tan macnaheedu waa, waxaad u bedeshay masaladii tibaax cusub oo xisaabeed, taas oo aad ku arki doonto casharada soo socda.

Weedh xisaabeedka odhanaysa in laba tibaaxood oo aljabraad ay isku mid yihiin ayaa la dhahaa isle'eg.

Tusaale 1:

1 $x = 3$ waa isle'eg leh hal-doorsoome.

2 $2x+7= 9$ waa isle'eg leh haldoorsoome.

3 Wixii aad ku soo dhistay shaqo-kooxeedii 2.1, haddii aad saxday, sidoo kale waa isle' egyo.

isle'egyada waxay lahaan karaan in ka badan hal-doorsoomayaal.

Tusaalaha 2: $x + y = 2$ waa isle'eg leh laba doorsoomayaal

weedh-xisaabeed (masalooyinka) waxaan u qori karnaa qaab isle'egyo.

Tusaale 3: waxaan ka fikirayaa tiro, haddaad u gayso 5, waxaad heli 9. Qor isle'egta u taagan masaladan.

Furfuris: ka soo qaad in tirada aan ka fikiray ay tahay x, u gee 5 tirada; $x + 5$. Waxaa la ina siiyay in maxsuulku yahay 9, sidaasi darteed waxaan helaynaa isle'egta. $x + 5 = 9$.

Tusaale 4: haddii baska wayni uu afar jeer ka culus yahay baska yar, dabadeedna culayska baska wayni yahay 16000 kg. Waa maxay culayska baska yari?

Furfurs: ka soo qaad in culayska baska yari yahay Wkg, baska wayna uu afar jeer ka culus yahay baska yar. Baska wayn

culayskiisu = $4xw = 4w$ kg

culayska baska wayni waa 16000 kg

culayska baska wayni = $4w$ kg = 16000 kg

= 4000 kg = baska yar.

Waayo labada tibaaxoodba waxay u taagan yihiin culayska baska wayn, waana isku mid. Sidaas darteed 4w = 16000kg, taas oo hadda isle'eg ah sharaxaysa xidhiidhka ka dhexeeya culayska baska wayn iyo culayska baska yar.

Tusaale 5: Naasir dhibcaha uu xisaabta keenay waxay 20 ka yar tahay inta uu C/qaadir keenay maadaama Naasir keenay 79 imtixaankii C/qaadir imisa ayuu kenay?

Furfurs: ka soo qaad in dhibcaha C/qaadir keenyay tijaabadu tahay y, dabadeed in Naasir dhibicihiisu waxay la mid noqon $y - 20$, maadaama oo Naasir keenay 79 dhibcood, intii waxay la mid tahay $y - 20$. Hadda waxaan haysanaa isleegta sharaxaysa xaalada $y - 20 = 79$. $y = 79 + 20 = 99$.

isle'egyadu waxay noqon karaan run ama been marka doorsoomayaashooda lagu badalo qiimayaal.

Furfurista Isleegyada

Sidaad ku soo aragtay waxayaabihii aan ku soo qabanay qaybihii aan ku soo qaadanay qaybtii inoogu dambaysay.

Waxaan la kulanay in badan oo tibaaxo iyo isle'egyo ah maalinkasta waxyaalaha aan qabano, laakiin waxaa aad u muhiim ah in aan helo qiimayaasha doorsoomayaasha, taas oo ah jawaabaha isleeg'yada sida (imisa dhibcood ayuu C/qaadir keenay) ama (waa imisa culayska baska yari) IWM.

Waxaan dhahaynaa tirooyinkani waxay raali galiyaan isle'egyadeena.

Hawlgalka 2.6

1 $2x + 10 = 20$ waa isle'eg leh hal doorsoome, ku badal x tiradaad doonto, fududeena.

b maxaad heshay?

t sheeg haddii weedha aad heshay ay run tahay ama been tahay.

2 $x = 5$ waa isle'eg, x ku badal 5, weedha aad heshay ma run baa?

3 Qaado isle'egt $3x - 7 = 5$, dabadeed x ku badal 5, fududeena.

b Isle'egtee ayaad heshay?

t x ku badal 4, dabadeedna fududee ma waxaad heshay weedh run ah?

isle'egtu marka ay leedahay doorsoome, furfurista (xalinta) isle'egtu waa tirada isle'egta ka dhigta run, marka doorsoomaha lagu badalo tirada.

Tusaale 4: $2x + 10 = 14$ furfuristeedu waa $x = 2$, waayo haddii x lagu badalo 2 isle'egta $2x + 10 = 14$, wuxuu noqon $2 \times 2 + 10 = 14$ ama $14 = 14$ taas oo ah weedh run ah.

Tusaale 5: $x-2 = 7$, furfuristeeduna (xalilkeedu) waa $x = 9$, waayo haddii x aad ku badasho 9, isle'egta $x - 2 = 7$, waxay noqon $9-2=7$, dabadeed $7 = 7$ waa weedh run ah.

Tusaale 6: $3x = 15$, furfuristeed waa $x = 5$, waayo haddii x lagu badalo 5, isle'egta $3x = 15$ waxay noqon $3 \times 5 = 15$ dabadeedna $15 = 15$, waana weedh run ah.

Tusaale 7: waxaan ka fikiray tiro haddaad u gayso 5 tirada, waxaad heli 9. Qor isle'egta u taagan masaladan ka doorana furfurista (xalka) tirooyinka ku qoran jalxada (shaxanka 12).

Furfurs: isle'egta $x + 5 = 9$, haddaad ku badasho x tiro kasta oo ku qoran jalxada, waxaad arki doontaa in 4 oo kaliyahi raali galiso isle'egta. Sidaasi darteed $x = 4$ waa furfurista isle'egta (xalka)

Tusaale 8: haddii uu baska wayni uu afar jeer ka culus yahay baska yar oo, culayska baska wayni uu yahay 6000kg, ku day tirooyinka boggan dhammaadkiisa ku qoran (shaxanka 13). Raadina midka furfures u noqda isleegta furfurista (xalka) waa culayska baska yar.

Furfurs: $4w = 6000$ kg waa isle'egta sharaxaysa xidhiidhka ka dhexeeya culaysyada baska yar iyo baska wayn, isku day dhamaan

W = 1500kg waa xalka (furfurista)isle'egta.

Tusaale 9: Naasir dhibcihiisa uu xisaabta keenay waxay 20 ka badan yihiin inta uu C/qaadir keenay, haddii Naasir keenay 79 imtixaankii. Raadi dhibcaha C/qaadir keenay adigoo isticmaalaya shaxanka 14 ee hoos ku qoran, ku badal tirooyinka (59 ama 75) helna midka ka raali galiya isle'egta.

Furfurs: isle'egta sharaxaysa xaaladani waa $y + 20 = 79 \Rightarrow y = 79 - 2 = 59$ dhibcood.

LAYLIS 2.6

1 Buuxi meelaha bannaan ee labada jiif u tax ee shaxda soo socota, ta horaysa waa lagaaga shaqeeyay.

	Isle'eg	doorsoo mayaal	qiimayaal	Isle'egta qiimayaasha lagu badalo dabadeed	Weedhu ma run baa mise waa been
b	$x + 2 = 5$	x	$x = 2$	$2 + 2 = 5$	Been
t	$2x - 5 = 9$	x	$x = 4$		
j	$2x - 5 = 9$	x	$x = 7$		

2 U badal weedh xisaabeed (masalo) kasta isleegyo, dabadeedna ka dooro tirada isleegta run ka dhigta qawska dhexdiisa.

b walaashay laba sano ayay iga wayn tahay waa imisa jir walaashay, haddaan anigu ahay 20 jir? (10, 12, 15, 22)

t bishii ina dhaaftay waxaan iibsaday inta kiiloo garaan(kg) ee aan bisha iibsaday saddex laabkeed oo qamadi ah, haddii aan iibsaday bishan 75kg. Imisa kg oo qamadi ah ayaan bishii hore iibsaday? (20, 25, 30).

3 Culayska buuga 2giraan ka yar ka labaad culayskiisa oo shan lagu dhuftay, haddii buuga koowaad culaskiisu, yahay 13 giraaam, ka labaad culayskiisu waa imisa? (1, 2, 3).

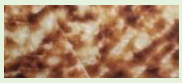
Dheeliyada oo lagu Furfurayo ku badalida tiro lagu badalo:

Miisaankani aan ka hadlaynaa wuu ka duwan yahay kii aad ku soo aragtay isle'egyada. Halkan saxanka, saxanka midigtu wuu ka hooseeyaa ka bidixda tan macnaheedu waa midka midigta ayaa ka culus, ka bidixda. Miisaankani wuxuu ina tusayaa dheeliyada. Waligaa miyaad is barbar dhigtay jab furin ah oo uu ku siiyay qof ka mid ah qoysku? Maxaa maskaxdaada soo gala "in midka la siiyay qof kale uu ka adiga lagu siiyay ka wayn yahay" taasina sax ma'aha! Haddaba nolosheena waxaa ku badan waxyaalo lays bar-bar dhigayo, isku mid ahaanshahooda iyo dheelinimadooda.

Hawlgalka 2.7

1 Furunka jabkee ayaad rabtaa? Ma ta dhinaca midigta mise ta dhinaca bidixda? Waayo? (fiiri sawirka 15 iyo 16).

15



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2 Tax sumadaha xisaabta ee aad u isticmaasho isbarbardhiga ee aad taqaano?

3 Miyaad xusuusataa casharadii ururka tirooyinka idil, ku saabsanaa ee cutubka 1aad, waxaad ku soo baratay sida la isku barbardhigo tirooyin badan. Qor saddex tusaale oo laba tiro oo la isbarbar dhigay ah.isticmaal mid kasta oo ka mid ah sumadaha dheeliyada ≠, <, >.

4 Qor tibaax isbarbar dhigaysa da'dooda iyo da'da saaxiibadooda kuxiga ee garab fadhiya.

5 Qor tibaax is bar-bar dhigaya dhibcahaagii xisaabta ee tijaabadii kuugu dambaysay ee aad qaadato iyo qofkii ugu dhibco sareeyay xisaabta ee fasalkiina.

dheeliyadu waa weedh sheegaysa in laba tibaaxood aanay isleekayn

Tusaale 1:

b haddii aad dhigto 1 kii kilo giraam oo sonkor ah saxankii midig ee miisaanka saddex kiiloo giraam oo sonkor ahna saxanka bidix, dabadeed saxanka bidix ayaa ka hoos mari saxanka midigta. Xaaladan waxaa lagu muujin karaa xisaab ahaan iyada oo la isticmaalaayo dheeli L > R ama R < L, hal na ay u taagan tahay culayska saxanka bidixda ee R ay u taagan tahay culayska saxanka midigta.

t mid kasta oo ah tibaaxahan soo socda waa dheeliyo.

i $3 \neq 5$ **ii** $3 < 5$ **iii** $5 > 3$

iv $x < x + 5$ **v** $3x + 2 > 9$ **vi** $x > x + 5$

Tusaale 2: u turjun mid kasta oo ka mid ah masalooyinkan soo socda, dheeliyo.

b waan ka waynahay wiilkayga

Furfurs: ka soo qaad in da'daydu tahay x da'da wiilkayguna tahay y dabadeed $x > y$ waa dheeliga is barbardhigaysa da'da wiilkayga iyo tayda.

t caasha dhibceheeda xisaabtu way ka fiican yihiin dhibcaha cali keenay.

Furfurs: kasoo qaad in dhibcaha caashi keentay xisaabtu ay u taagan tahay 'u' kuwa cali keenayna ay yihiin V, dabadeed U > V, waxay u taagan tahay dheeli da, dooda.

Furfurista (xallinta) Dheeliyada:

Hawlgalka 2.8

Waxaa lagu siiyay dheeliyadan soo socda (i ilaa v), ka jawaab su'aalahan soo socda ee b ilaa r.

i $2 > 4$ **ii** $3 < 4$ **iii** $x + 2 < 5$

iv $x - 2 < x$ **v** $x - 2 > x$

b dheeliyada layna siiyay ee I ilaa v teebaa mar kasta run ah ama mar kasta been ah?

t su'aasha iii, x, ku badal 4 maxsuulka dheeligu ma runbaa?

j su'aasha iii, x, ku badal 2, maxsuulka dheeligu ma runbaa?

x su'aasha iv,u badal 2, maxsuulka dheeligu ma runbaa?

kh ku day tiradaad doonto, weedhaa maxsuulka ahi ma run bay noqon?

d su'aasha V, X, ku badal 2. Dheeliga aad heshaa ma run buu noqon doonaa?

r ma waxaad filaysaa in mar kasta ay been noqondoonto?.

Dheeliyada qaar ka mid ahi had iyo jeer waa run, qaarna had iyo jeer waa been, qaarna qiimayaasha doorsoomaha lagu badalo. Qaar kamid ahi run buu ka dhigaa, qaarna been bay ka dhigaan.

xalka ama furfurista dheeligu waa tirada marka doorsoomaha lagu badalo dheeliga ka dhigta weedh run ah.

Tusaale 3: $x = 1$, waa furfurista (xalka) dheeliga $x + 2 < 5$ waa run, $x = 3$ ma aha furfurista $x + 2 < 5$, waayo $3 + 2 < 5$ maaha weedh run ah.

LAYLIS 2.7

1 Buuxi meelaha bannaan labada jiif u tax ee ugu dambeeya ee shaxda sida ka muuqata b.

	dheelli	doorsoome	qiimayaal	Dheeliyada marka doorsoomaha tirada lagu badalo	Weedho run baa mise waa been.
b	$x + 2 < 5$	x	$x = 2$	2+2 < 5	Run
t	$3x - 5 > 9$	x	$x = 2$		
j	$3x - 5 > 4$	x	$x = 5$		

2 Masalooyinkan soo socda u badal dheeliyo

b Tiro ayaa waxay ka yar tahay 5 lagu dhuftay tirada labaad oo loo geeyay 3.

t tiro ayaa waxay ka wayn tahay shan laabka tirada labaad oo laga jaray todoba.

Erayada Furaha ah

- Badalida boqolayda
- Doorsoomeyaal
- Fududee tibaaxaha aljebraad
- Hal-tibxaale
- Ku furfur tibaaxda aljebraad qiimaha doorsoomaha lagu siiyey
- Laba-tibxaale
- Madoorsomeyaal
- Tibaaxaha Aljebraad
- Tibxo

Soo koobida cutubka 2

- ✓ Qiime waa tiro
- ✓ Doorsoome waa summad taasoo u taagan qiimeyaal
- ✓ Madoorsoome waa tiro taasoo leh qiime aan isbedeleyn. $5y$ waa habka loo soo gaabiyo qoraalak $5xy$.
- ✓ Tibaax aljebraad waa isugeynta hal ama in ka badan oo madoorsoome, Doorsoome iyo xisaabafalo.
- ✓ Marka Doorsoomeyaal ama madoorsoomeyaal la isku geeyo ama la kala jaro sida $x + y$ ama $x – y$ qeybaha ay kala soocaan “+” ama “–” waxaa la yidhaa tibxo.
- ✓ Tibaax aljebraad waxay ka samaysantaa hal ama inka badan oo tibxood.

- ✓ Tibixda madoorsoomaha ka horeeya doorsoomaha waxaa la yidhaa horgalaha tibixda.
- ✓ Hal-tibxaale waa Nooc tibix Fudud taasoo ka samaysantay taranta Doorsoomeyaal Fudud iyo madoorsoomayaal.
- ✓ Wadarta laba hal-tibxaale waa laba-tibxaale.
- ✓ Waxaan Isku-geyn karaa horgaleyaasha tibxaha leh doorsoome isku mid ah ee tibaaxda, dabadeedna waxaan ka dhigaynaa tirada tibxaha tibaaxda midka yar intii hore.
- ✓ Laba tibxood, waxaa la yidhaa tibxo isku mid ah, haddii ay qeybahooda doorsoomuhu isku mid yihiin.
- ✓ Laba ama inka badan oo tibxo isku-mid ah waa laysu geyn karaa si ay u sameeyaan hal-tibix ama tibix kaliya.
- ✓ Tibaaxda lagu helay isu-geynta horgaleyaasha tibxaha isu-midka ah ee tibaaxda waa tibaax la fududeeyey.
- ✓ Marka doorsoomeyaasha tibixda lagu bedelo, tiro go'an, ee tibaaxdana la fu dudeeyo, waxay ina siisaa qiime tiro ah. Habkan waxaa la dhahaa, Qiimeynta tibixda ee qiime tiro ahaaneed.
- ✓ Haddii tibaaxdu aanay lahayn tibxo isku mid ah, fududeynteedu waa tibaaxda lafududeeyay.
- ✓ Hawraar xisaabeeda, taasoo oo sheegeysa in laba tibaax aljebraad ay isku mid yihiin waxaa la dhahaa isle'eg.
- ✓ Isle'egyadu waxay lahaan karaan doorsoomeyaal ka badan hal ama in ka badan. Hal-doorsoomeyaal waxaan u qori karaa masalooyinka isle'egyo.
- ✓ Isle'egyadu waxay noqon karaan run ama been, marka doorsoo-may aashooda lagu bedelo qiimeyaal.
- ✓ Marka isle'egtu leedahay doorsoome, xalka isle'egtu wuxuu noqon tiro, taasoo isle'egta ka dhigta run marka door soomaha lagu bedelo tiro.
- ✓ Dheeligu waa hawraar ama weedh taas oo sheegaysa in laba tibaaxood aanay isku-mid ahayn.
- ✓ Xalka (furfurista) dheeligu waa tiro, taasoo marka lagu bedelo doorsoomaha, ka dhigta dheeliga weedh run ah.

Laylis guud

1 Halkan waa sallad ay ku jiraan khudrad iyo caleenta cuntada lagu daro. Cali wuxuu iibsaday 4kg oo yaanyo ah, 5kg oo liin ah iyo 1kg oo liin ah dhamaan iyo 1kg qaji ah, 3kg oo muus ah iyo 5kg oo basal ah, Cabdina wuxuu iibsaday 6kg oo yaanyo ah, 3kg oo liin ah, 2kg liin dhanaan ah, 1kg oo qaji ah, 5kg oo muus ah iyo 3kg oo basal ah

b imisa kg oo muus, liin, liin dhanaan, qaji iyo basal ah ayuu wiil kastaa iibsaday?

t Imisa lacag ah ayuu ku bixiyay midkasta nooc kasta?

Liiska qiimaha khudrada iyo caleenta

noocyada	Muus	Liindhanaan	liin	basal	qaji	Yaanyo
Qiimaha/kiiloogiiba	6.00	12.00	10.00	7.00	16.00	8.00

2 Baabuur ayaa wuxuu socday 40km saacadii, baabuur wuxuu ku socday xawaare isku mid ah. U buuxi shaxdan soo socota sida ka muuqata saddexda jiiftax.

Wakhtiga oo lagu cabiray saacad	1	2	3	y	$3y$	$y+2$	$y-3$	$y+y$
Fogaanta baabuurku socday t saacadood	1 × 40 km = 40 km	2 × 40km = 80km	3 × 40 km = 120 km					

3 Ka dooro jawaabta (furfurista) ururka tirooyinka lagu siiyay ee ku dhex qoran sawirka bisada u eg (sawirka 16) mid kasta oo ka mid ah su'aalahan soo socda.

i $x = 5$

ii $5 = x$

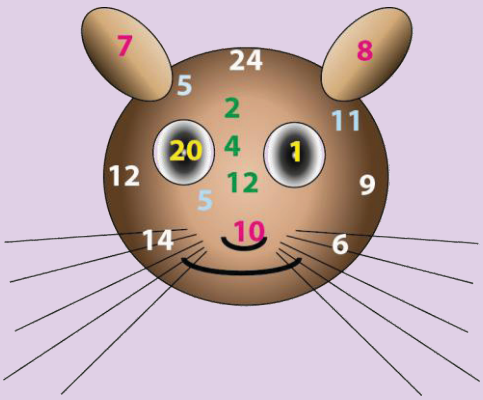
iii $u + 3 = 9$

iv $7 \times m + 15 = 29$

v $M + 3 = 19 - m$

vi $z - 1 - 2 - 3 = 18$

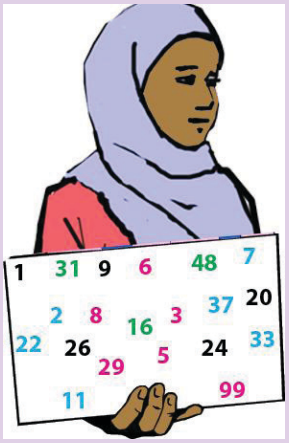
vii $x + 3 + 4 - 2 = 9 - 2$.



4 Haddii tiro loo geeyo 5, maxsuulku waa 16, tirooyinka ku jira sawir 17. Keebaa la mid ah tiradan?

5 Tiro lagu dhuftay saddex ayaa laga jaray, 7 maxsuulku waa 29, tirooyin ku dhex qoran sawirka 17^{aad}, teebaa ah jawaabta?

6 Waxaa jira tirooyin ka wayn eber kana yar 5. Qor dheeliga furfuristeedu (xalkeedu) yahay tiradan, dabadeed raadi fur furisteeda (xaalkeeda).



Sawirka 17

7 Tiro haddii 4 loo geeyo, maxsuulku waa shanlaabka tirada, ka raadi tirada sawirka 17 dhexdiisa.

8 Wadarta laba abyoone oo isku xiggaa waa 17, ka raadi labada tiro sawirka 17, dhaxdiisa.

9 Da'da aabahay waa da'dayda saddex laabkeed, haddii wadarta da'daydu tahay 64. Tirooyinka ku jira sawirka 17, teebaa ah da'dayda? da'da aabahayna waa intee?

10 Caasha dhererkeedu waa labanlaabka walaasheeda yar, haddii faraqa dhererkoodu yahay 10sm. Dhererka caasha waa imisa? Ka raadi tirada sawirka 17, dhexdiisa.

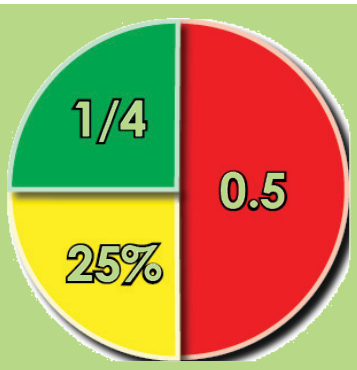
11 U badal masalooyinkan soo socda dheeliyo

b 10 laabka tiro wuxuu ka wayn yahay 10 jawaabta (xalka) ka dooro sawirka 17aad

t saddexda lagu dhuftay tiro oo laga jaray 2 waxay ka yar tahay 4.tirada ka raadi tirooyinka idil ee ku dhex qoran sawirka 17.

j tiro ayaa ka wayn afar lagu dhuftay tirada labaad oo laga jaray todoba, ka dooro jawaabta sawirka 17, dhexdiisa (hadda furfuristu waa laba tiro waayo waxaa jira laba tiro oo aynaan garanayn.

Cutubka 3aad



JAJABYADA, JAJAB TOBANLEYAASHA IYO AFARTA XISAABFAL

UJEEDDOOYINKA CUTUBKA

Dhamaadka cutubkani waxaad awoodi doontaa inaad

- *Ogaato noocyada jajabka.*
- *Fahanto fikirka boqolayda iyo xeerasha boqolayda oo loo badalo jajab iyo jajab tobanle.*
- *Ogaato habka isbar badhigidda jajabyada.*
- *Adeegsato afarta xisaab fal ee aasaasiga ah ee jajabyada iyo jajab-tobanleyaasha.*

TUSMOOYINKA MUHIIMKA AH

HORDHAC

Xisaabtii fasalka Afraad waxaad ku soo barateen wax ka mid ah falan qaynta jajabyada, jajabyada isku dhigma iyo jajab toban laha ilaa iyo laba god oo jajab tobanle ah. Cutubkani waxaad ku baran doontaa noocyada jajabyada, boqolayda, isbar-bar dhiga jajabyada, jajabtobanlaha ilaa sadex god oo jajab toban leh ah iyo sida loogu badalo boqolayda jajabyo, iyo jajab tobanle. Waxaa intaasi dheer, waxaad baran doontaan sida la isku bar-bardhigo jajabyada iyo jajab tobanlaha.

3.1 NOOCYADA JAJABYADA

Fasalkii Afraad waxaad ku soo barateen waxyaabo ku saabsan jajabyada. Cutub hoosaadkana waxaad nakhtiimi doontaan jajabyada waxaanad si, faah-faahsan u baranaysiin noocyada jajabyada.

Hawlgalka 3.1

1 Haddii aad si isleeg ula qaybsato hal cananis saaxiibkaa maxay noqon doontaa qaybtaadu?

2 Hadii uu macalin siiyo arday $\frac{1}{2}$ liin ah abaal marin ahaan oo uu macalinku hayo $4\frac{1}{2}$ liin ah imisa arday ayaa abaal marinta heli kara?

3 Waa maxay jajab?

4 Waa maxay sareeyaha iyo hooseeyaha mid kasta oo jajajbyadan ah $\frac{3}{4}$, $\frac{5}{8}$, $\frac{7}{5}$ iyo $\frac{21}{13}$, waa noocma jajabka lamaanaha hore? Iyo lamaanaha labaad?

5 Si isleeg ugu qaybi 4 arday. Waa imisa qaybta arday kastaaba? Adeegso shaxan si aad u muujiso qaybta ardaygiiba helayo?

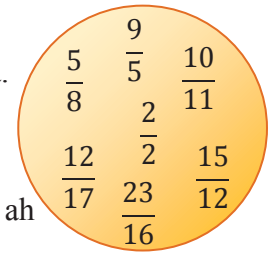
Hawlgalkaasi sare waxaa laga yaabaa in aad ku garateen waxa jajabku yahay, iyo sida loo sheego sareeyaha iyo hooseeyaha jajab lagu siiyay. Haddaba ciwaan hoosaadkani waxaad ku barandoontaan noocyada jajabka.

1 Jajabka uu sareeyihiisu ka yar yahay hooseeyihiisa waxa layidhaahdaa jajab qumane jajab qumanaha had iyo jeer waa uu ka yahay 1.

2 Jajabka uu sareeyihiisu ka weyn yahay hooseeyihiisa waxa loo yaqaanaa jajab ma qumane.

Tusaale 1: Eeg jajabkan lagu siiyay goobadan hoose si aad uga jawaabto mid kasta oo su'aalahan soo socda ah:

b Tax jajabyada quman. **t** Tax jajab ma qumanaha.



Shaxanka 3.1

Furfuris:

b $\frac{5}{8}$, $\frac{12}{17}$ iyo $\frac{10}{11}$ waa jajab qumanayaal, sababtoo ah xaalad kasta sareeyuhu wuxuu ka yar yahay hooseeyaha.

t $\frac{9}{5}$, $\frac{2}{2}$, $\frac{23}{16}$ iyo $\frac{15}{12}$, waa jajab ma qumanayaal, sababtoo ah mid kasta oo ka mid ahi sarreeyuhu wuxuu ka weyn yahay ama leeg yahay hooseeyaha.

Tusaale 2: Sheeg sareeyaha iyo hooseeyaha mid kasta jajabyadan soo socda:

b $\frac{49}{33}$ **t** $\frac{12}{3}$ **j** $\frac{23}{12}$

Furfuris:

	Jajabyo	Sarreeye	Hooseeye
b	$\frac{49}{53}$	49	53
t	$\frac{23}{12}$	23	12
j	$\frac{8}{8}$	8	8

Tirada ka kooban tiro idil iyo jajab quman waxaa loo yaqaan tiro dhafan.

Tusaale 3: Kuweebaa ah tirooyinka dhafan kuwan soo socda?

b $\frac{3}{4}$ **t** $1\frac{2}{3}$ **j** $7\frac{5}{12}$ **x** $\frac{9}{13}$

Furfuris: t iyo j waa tirooyin dhafan sabatoo ah mid kastaaba waxaa uu ka kooban yahay tirooyin Idil iyo jajab qumane.

Jajab ma qumanaha waxaa loo qori karaa tiro dhafan, tirada dhafana waxaa loo qorikaraa jajab ma qumane.

Tusaale ahaan: $\frac{8}{3} = \frac{6+2}{3} = \frac{6}{2} + \frac{2}{3} = 2 + \frac{2}{3} = 2\frac{2}{3}$

Sidaad darteed $\frac{8}{3} = 2\frac{2}{3}$ halkaas oo $\frac{8}{3}$ ay tahay jajab ma qumane oo $2\frac{2}{3}$ ay tahay tiro dhafan.

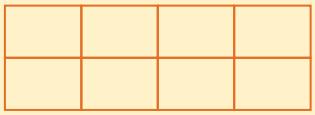
SHAQO KOOXEEDKA 3.1

1 Si isle'eg ugu qaybi sadex xabo oo liin ah Afar arday.

Waa inisa qaybta arday kastaaba? Koox-koox u shaqeeya oo naqil ama guuriya shaxanadan soo socda oo hadheeya qaybta halkii arday uu helayo.

Shaxanka 3.2

2 Adigoo adeegsanaya laydiyada shaxankan hoose hadhee qaybta tilmaamaysa jajabka $\frac{3}{8}$, marka kale hal qayba u sii qaybi shan qaybood oo isleeg, qaybtaasi oo u taagan jajabka $\frac{3}{5}$. Mid kastoo kooxdiina ka mid ahi sidaas ha u sameeyo inta kale ee hadhay. Falan-qeeya inta qayb yar oo kastaaba ay muujinayso. Marka la bar-bar dhigo laydiga oo dhan.



Shaxanka 3.3

Tusaale 4: U badal jajab ma qumanayaashan tirooyin dhafan.

b $\frac{8}{5}$ **t** $\frac{25}{4}$

Furfuris:

b Raadi tirada idil ee ugu wayn ee ka yar $\frac{8}{5}$, si aad u hesho tiradaasi raac hanaankan soo socda: $\frac{8}{5}=\frac{5+3}{5}=\frac{5}{5}+\frac{3}{5}=1+\frac{3}{5}=1\frac{3}{5}$

t Raadi tirada idil ee ugu wayn ee ka yar $\frac{25}{4}$, si aan u dhamayno.

$\frac{25}{4}=\frac{24+1}{4}=\frac{24}{4}+\frac{1}{4}=6+\frac{1}{4}=6\frac{1}{4}$

Tusaale 5: u badal mid kasta oo ka mid ah tirooyinka dhafan ee soo socda jajab ma qumane.

b $2\frac{1}{4}$ **t** $8\frac{2}{3}$

Furfuris:

b $2\frac{1}{4} = \frac{4 \times 2 + 1}{4} = \frac{8 + 1}{4} = \frac{9}{4}$

t $8\frac{2}{3} = \frac{3 \times 8 + 2}{3} = \frac{24 + 2}{3} = \frac{26}{3}$

Tusaalaha sare waxaan ka go'aansanaynaa hubaashan hoose. Haddii, a, b iyo c yihiin tirooyin tirsiimo ah oo ay $b < c$

Tusaale 6: U qor $\frac{15}{25}$, habkeeda ugu fudud.

Jajab wuxuu hanaanka ugu fudud yahay hadii isir waynaha ay wadaagaan sareeyaha iyo hooseeyuhu uu yahay 1. Cutubkii koowaad waxaad ka xusuusan tahay in ka ugu wayn isirada ay wadaagaan laba tiro ama in ka badan waxaa loo yaqaan isirwaynaha ay wadaagaan tirooyinkaasi.

Furfuris: $\frac{15}{25} = \frac{3 \times 5}{5 \times 5} = \frac{3}{5} \times \frac{5}{5} = \frac{3 \times 1}{5} = \frac{3}{5}$

Sidaas darteed. Habka ugu fudud ee $\frac{15}{25}$ waa $\frac{3}{5}$.

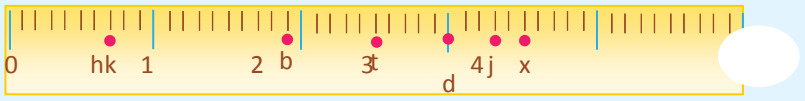
LAYLIS 3.1

1 U qor saansaanta ugu fudud ee jajab yadan soo socda.

b $\frac{9}{12}$ **t** $\frac{24}{30}$ **j** $\frac{75}{100}$ **x** $\frac{22}{18}$ **kh** $\frac{45}{25}$

2 Ku aadi xaraf kasta jajabyada soo socda ee shaxanka 3.4 ee hoose?

b $\frac{33}{10}$ **t** $\frac{23}{5}$ **j** $\frac{19}{10}$ **x** $\frac{7}{2}$ **kh** $\frac{3}{1}$ **d** $\frac{7}{10}$



Shaxanka 3.4

3 Kuwan soo socda kuweebaa ah jajab qumane?

b $\frac{8}{7}$ **t** $\frac{11}{12}$ **j** $\frac{24}{5}$ **x** $\frac{33}{4}$ **kh** $\frac{21}{23}$

4 U badal mid kastoo kuwan soo socda ah tirooyin dhafan?

b $\frac{22}{5}$ **t** $\frac{34}{6}$ **j** $\frac{11}{4}$ **x** $\frac{18}{7}$ **Kh** $\frac{43}{7}$

5 U badal mid kasta oo ka mid ah tirooyinkan dhafan jajab ma qumanayaal?

6 Kuwee baa ah jajab maqumanayaal ku wan soo socda?

b $\frac{20}{11}$ **t** $\frac{15}{17}$ **j** $\frac{52}{35}$ **x** $\frac{5}{3}$

7 8kg oo sonkor ah ayaa si isleeg loogu qaybiyay 12 qof. Raadi qaybta uu helay qof kastaa?

8 Naqil ama guuri oo buuxi shaxdan soo socota.

	Jajab	Dhafan, Qumane, Ma-qumane		
b	$2\frac{3}{4}$			
t	$\frac{7}{3}$			
j	$\frac{9}{10}$			
x	$\frac{24}{5}$			

3.2 BOQOLAYDA OO JAJAB AH

Ciwaan hoosaadkani waxaad ku baran doontaa waxa boqolaydu ay tahay iyo sida boqolayda loogu tilmaamo jajabyo iyo sida boqolayda loogu badalo jajab tobanle.

Hawlgalka 3.2

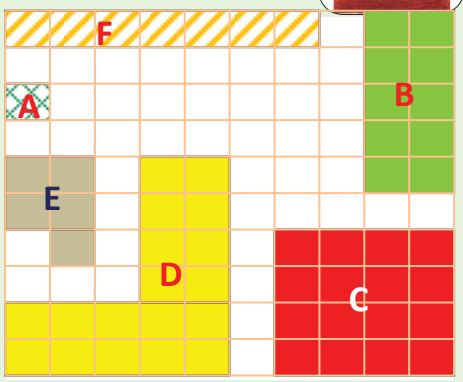
1 Eeg shaxanka 3.2 oo ka jawaan su'aalaha soo socda.

b waa maxay qaybta shaxanka ee lagu hadheeyay huruuda?

t qaybtee lagu hadheeyay casaan?

j jajabyadeebaa lagu qoray xuruufta A, B, C, D, E IYO F?

x jajabyadeebaa aan la hadhayn?



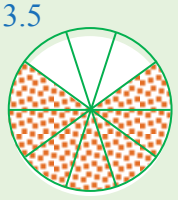
Shaxanka 3.5

2 Qayb kasta oo shaxanka 3.6 ka mid ahi waxay ka kooban tahay 10 buug

b imisa buug ayaa ku jira shaxanka?

t imisa buug ayaa ku jira qaybta hadhaysan?

j maxay jajab ahaan ka yihiin buugta ku jirta qaybta hadhaysan?



Shaxanka 3.6

Ogow

1. Boqolaydu waa qayb ka mid ah hal shay oo idil (walax) loo qaybiyay 100 meelood oo isleeg.
2. Jajab uu hooseeyihiisu yahay 100 waxad loo yagaanaa Bogolay.

Tusaale: waxaynu u qornaa

$$\underbrace{18\%}_{\text{Boqolay}} = \underbrace{\frac{18}{100}}_{\text{Jajab}} = \underbrace{0.18}_{\text{Jajab tobanle}}$$

Ogow

1. Boqolayda waxay ku koobantahay kuxisaabinta boqolaadka (bogolkiba).
2. Calaamada % macnaheedu waa boqolkiiba, halkaasoo $1\ \% = \frac{1}{100}$.
3. Boqolaydu waa jajab caadi ah sidoo kale waa jajab tobanle.

Tusaale 1: U qor boqolay ahaan.

b $\frac{24}{100} = \frac{24 \times 1}{100} = 24\%$ **t** $\frac{80}{100} = \frac{80 \times 1}{100} = 80\%$

Tusaale 2: Ku tibaax ama ku qor kuwan soo socda jajab ahaan:

b 25% **t** 12%.

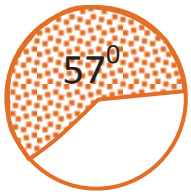
Furfuris: **b** $\frac{25}{100} = \frac{1 \times 25}{4 \times 25} = \frac{1}{4}$

Ogow

$\frac{25}{100}$ waxaa loo yareeyay $\frac{1}{4}$, iyada oo sareeyaha iyo hooseeyaha loo qaybiyay 25.

Qaabka jajab ee 25% waa $\frac{1}{4}$

t $12\% = \frac{12}{100} = \frac{3 \times 4}{25 \times 4} = \frac{3}{25}$



Shaxanka 3.7

Tusaale 3: u badal 57% jajabtobanle.

Furfuris: $57\% = \frac{57}{100} = 0.57$

Ogow

$\frac{57}{100}$ waxaa loo fikiri karaa sida $\frac{57}{100}$, iyadoo loo rarayo barta jajab tobanle xaga bidix laba god waana sidan 0.57.

Tusaale 4: u badal mid kastoo boqolayda soo socota ah jajab tobanle.

b 92% **t** 31% **j** 9%

Furfuris:

b $92\% = \frac{92}{100} = 0.92$ **t** $31\% = \frac{31}{100} = 0.31$ **j** $9\% = \frac{9}{100} = 0.09$

Tusaale 5: Ku tibaax ama u qor mid kastoo jajabyadan soo socda ah boqolay ahaan.

b $\frac{1}{5}$ **t** $\frac{9}{20}$

Furfuris:

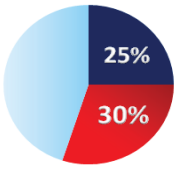
b $\frac{1}{5} = \frac{1\times20}{5\times20} = \frac{20}{100} = 20\%$

t $\frac{9}{20} = \frac{9\times5}{20\times5} = \frac{45}{100} = 45\%$

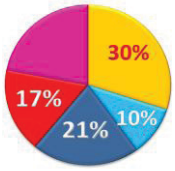
Si aad jajab ugu badasho boqolay ku dhufo 100%.

Tusaale 6: waa maxay boqolayda maqan ee shaxanadan hoose ee 3.8?

b



t



Shaxanada 3.8

Furfuris: **b** 25% + 30% = 55%, boqolayda lahayaa waa 55%, boqolayda maqana waa 100% - 55% = 45%.

t 17% + 21% + 10% + 30% = 78%.

Wadarta boqolayda lahayaa waa 78% inta maqanina waa 100% - 78% = 22%.

LAYLIS 3.2

1 Ubadal jajabyo midkastoo ka mid ah boqolaydan soo socota.

b 70% **t** 60% **j** 55% **x** 26% **kh** 33%

2 U badaljajab tobanle mid kastoo ka mid ah boqolaydan soo socota.

b 2% **t** 12% **j** 175% **x** 25% **kh** 89%

3 Adeegsiga xaqiiqda ah p/100 = p%, raadi qiimaha P ee isle'egta.

b $\frac{41}{100} = P\%$ **t** $\frac{24}{100} = P\%$ **j** $\frac{7}{50} = P\%$ **x** $\frac{11}{25} = P\%$

4 Waa maxay boqolayda shaxankan inta

b la hadheeyay? **t** Aan la hadhayn?

Shaxanada 3.9

5 Muuji in 25%, $\frac{1}{4}$, iyo 0.5 ay leeyihiin qiime isku mid ah.

6 Muuse wuxuu jeebka ku haystay 60 Birr, haddii uu shaadh ku soo iibsaday 30 birr. Waa imisa boqolkiiba inta uu isticmaalay lacagtii?

7 Imtixaan tijaabo ah, ayuu arday ka jawaabay 87 su'aalood 100kii su'aalood, ba waa maxay boqolkiiba inta uu ka jawaabay?

8 Goobo ku sawir oo hadhee 25% ka mid ah?

9 Imtixaan tijaabo ah oo higaadin ah, ayay Asma ka saxday 44 Eray. Waa imisa dhibicdeedu boqolkiiba?

10 420 arday ayaa iskuul kujira, 30% waa gabdho, inta hadhayna waa wiilal. Waa imisa wiilashu boqolkiiba?

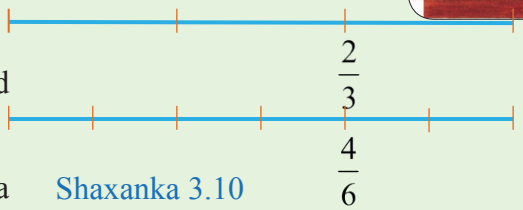
3.3 ISBARBARDHIGIDA IYO HORSANAANTA JAJABYADA

Fasalkii hoose waxaad soo baratay sida la isku bar-bardhigo iyo sida horsanaan loogu qoro jajabyada iyo jajab tobanle, ilaa laba god. Ciwaan hoosaadkana waxaad ku baran doontaa waxyaabo badan oo ku saabsan isbarbardhiga iyo horsanaan u qorista jajabyada.

Hawlgalka 3.3

1 Midkeebaa wayn $\frac{2}{3}$ mise $\frac{4}{6}$?

Adeegso labadan shaxan 3.10 si aad uga jawaabto su'aasha.



Shaxanka 3.10

2 Ku dhufo sareeyaha iyo hooseeyaha jajabkan $\frac{2}{3}$ laba. Waa maxay xidhiidhka u dhexeeya $\frac{2}{3}$ iyo jajabka aad heshay?

3 Eeg shaxankan 3.11 si aad uga jawaabto mid kastoo ka mid ah su'aalahan soo socda.

b yaa ugu gaaban? **t** yaa ugu dheer?

Shaxanka 3.11

Hawl-galka 3.1 waxaad ku soo falanqayseen sida la isku bar-bardhigo jajabyada leh hooseeyayaal kala duwan. Waxa intaasi sii dheer oo aad baran doontaa jajabyada isku dhigma iyo sida la isku bar-bardhigo jajabyada.

Jajabka iyo Jajabka laga helo iyada oo hooseeyihiisa iyo Saree Yihiisa lagu dhufanaya tiro isku mid ah oo idil oo aan eber ahayn waxa la yidhaahdaa jajabyo isu dhigma

Si aad u hesho jajab u dhigma $\frac{2}{3}$, ku dhufo sareeyaha iyo hooseeyahaba tiro isku mid ah oo aan eber ahayn, sida laguugu muujiyay shaxankani hoose ee 3.12.

$\frac{2}{3}$

Shaxanka 3.12

Taasi oo ah $\frac{2}{3} = \frac{2}{3} \times \frac{2}{2} = \frac{4}{6}$,:. $\frac{2}{3}$ iyo $\frac{4}{6}$ waa jajabyo isku dhigma .

1 Si jajab loogu badalo jajab kale oo u dhigma, ku dhufo sareeyaha iyo hooseeyaha jajabka tiro isku mid ah oo idil oo aan eber ahayn.

2 Laba ama wax ka badan oo jajabyada isku dhigma ah waxay leeyihiin qiimo isku mid ah, xataa haddii sareeyayaasha iyo hooseeyayaashu ay kala duwan yihiin.

Tusaale 1: Raadi jajabyada u dhigma $\frac{7}{10}$, adoo ku dhufanaya hooseeyaha iyo sareeyahaba 2 iyo 3 kolbamid.

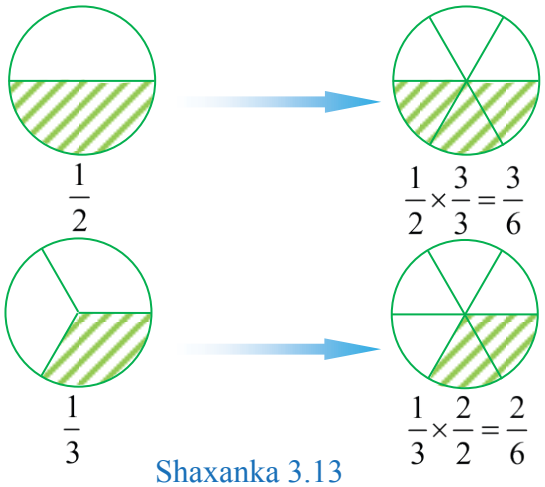
Furfuris:

b $\frac{7}{10} = \frac{7}{10} \times \frac{2}{2} = \frac{14}{20}$ ----- Waxaa lagu dhuftay $\frac{2}{2}$

t $\frac{7}{10} = \frac{7}{10} \times \frac{3}{3} = \frac{21}{30}$ ----- waxaa lagu dhuftay $\frac{3}{3}$

Furfuristaasi sare waxaad ku arkaysaa in $\frac{7}{10}$, $\frac{14}{20}$ iyo $\frac{21}{30}$ay yihiin jajabyo isku dhigma.

Si la isku bar-bardhigo $\frac{1}{2}$ iyo $\frac{1}{3}$ku dhufo sareeyaha iyo hooseeyaha ee labada jajab 3 iyo 2, siday u kala horeeyaan, ee lagu muujiyay shaxankan hoose 3.13.



Shaxanka 3.13

$\frac{3}{6}$ waxay ka wayn tahay $\frac{2}{6}$

$\frac{1}{3} \times \frac{2}{2} = \frac{2}{6}$ sidaasi darteed $\frac{1}{2}$ way ka wayntahay $\frac{1}{3}$ mana aha jajabyo isu dhigma.

Haddii aad doonaysid inaad is bar-bar dhigto laba ama wax kabadan oo jajabyo ah, markaa mid kastaba u badal jajabyo isku dhigma oo leh hooseeye isku mid ah. Markaa jajabka wayni wuxuu noqon doonaa ka sareeyi hiisu weyn (badan) yahay.

Tusaale 2: Isbarbardhig jajabyadan soo socda, keebaa wayn?

b $\frac{3}{4}$ iyo $\frac{6}{4}$ **t** $\frac{7}{13}$ iyo $\frac{9}{13}$

Furfuris:

b $\frac{3}{4}$ iyo $\frac{6}{4}$ waxay leeyihiin hooseeye isku mid ah, maadaama 6>3 markaa $\frac{6}{4} > \frac{3}{4}$.

t Sidoo kale $\frac{7}{13}$ iyo $\frac{9}{13}$ waxay leeyihiin hooseeye isku mid ah markaa $\frac{9}{13} > \frac{7}{13}$.

Tusaale 3: Isbar-bardhig jajabyadan soo socda, keebaa yar?

b $\frac{9}{10}$ iyo $\frac{8}{9}$ **t** $\frac{3}{4}, \frac{13}{15}$ iyo $\frac{5}{6}$.

Furfuris:

b $\frac{9}{10}$ iyo $\frac{8}{9}$, waxay leeyihiin hooseeyayaal kala duwan. Sidaasi darteed waa inaad midkood u badashaa jajab u dhigma oo leh hooseeye la mid ah.

$$\frac{9}{10} = \frac{9 \times 9}{10 \times 9} = \frac{81}{90} \text{ iyo } \frac{8}{9} = \frac{8}{9} \times \frac{10}{10} = \frac{80}{90}$$

Maadaama $81 > 80$, $\frac{80}{90} < \frac{81}{9}$, ta ugu yari waa $\frac{8}{9}$.

t Sidoo kale $\frac{3}{4}$, $\frac{13}{15}$ iyo $\frac{5}{6}$ waxay leeyihiin hooseeyayaal kala duwan, sidaasi darteed waa inaad mid kasta u badashaa jajab u dhigma oo leh hooseeye isku mid ah.

$$\frac{3}{4} = \frac{3 \times 15}{4 \times 15} = \frac{45}{60}$$

$$\frac{13}{15} = \frac{13 \times 4}{15 \times 4} = \frac{52}{60}$$

$$\frac{5}{6} = \frac{5 \times 10}{6 \times 10} = \frac{50}{60}$$

Markaas $45 < 50 < 52$ waxaad kalood haysaa,

$$\frac{45}{60} < \frac{50}{60} < \frac{52}{60}$$,taa macnaheedu waa

$$\frac{3}{4} < \frac{5}{6} < \frac{13}{15}$$

Jajabka ugu yari waa $\frac{3}{4}$.

Waxaa kale oo suurto gal ah in la isbar-bardhigo jajabyada iyadoo loo badalayo boqolay.

Tusaale 4: Axmed wuxuu galay saddex imtixaan, haddii natiijada imtixaankiisa lagu muujiyay shaxdan hoose, imtixaankee ayuu natiijo fiicnaa?

Furfuris: Si aad u hesho natiijada ugu fiican, waxaad u badali kartaa jajab kastaba boqolay ahaan si aad isku bar-bardhigto markaa.

$$\frac{6}{10} = \frac{6}{10} \times 100\% = 60\%$$

$$\frac{15}{25} = \frac{15}{25} \times 100\% = 60\%$$

$$\frac{13}{20} = \frac{13}{20} \times 100\% = 65\%$$

Imtixaanka 1^{aad}	Imtixaanka 2^{aad}	Imtixaanka 3^{aad}
$\frac{6}{10}$	$\frac{15}{25}$	$\frac{13}{20}$

Sidaasi darteed, wuxuu ugu natiijo fiicnaa imtixaanka sadexaad waana $\frac{13}{20}$.

Tusaale 5: Isbarbardhig lamaanayaasha jajabyada ah ee soo socda adigoo adeegsanaya calaamadaha "<" ">" ama "="

b $\frac{3}{2} \_\_\_\_ \frac{4}{7}$ **t** $\frac{2}{3} \_\_\_\_ \frac{13}{6}$ **j** $\frac{5}{6} \_\_\_\_ \frac{7}{8}$

Furfuris:

b U badal $\frac{3}{2}$ iyo $\frac{4}{7}$ jajabyo leh hooseeye isku mid ah.

$$\frac{3}{2} = \frac{3 \times 7}{2 \times 7} = \frac{21}{14} \text{ iyo } \frac{4}{7} = \frac{4 \times 2}{7 \times 2} = \frac{8}{14}$$

Adiga oo isbarbar dhigaya 21 iyo 8, markaa soo $21>8$, $\frac{21}{14} > \frac{8}{14}$. Taasi macnaheedu waa $\frac{3}{2} > \frac{4}{7}$

t U badal $\frac{4}{3}$ iyo $\frac{13}{6}$ jajabyo leh hooseeye isku mid ah, $\frac{2}{3} = \frac{2 \times 3}{3 \times 2} = \frac{4}{6}$.

Markaad isbarbar dhigto $\frac{4}{6}$ iyo $\frac{13}{6}$, $4 < 13$, markaa $\frac{4}{6} < \frac{13}{6}$, taasi macnaheedu waa $\frac{2}{3} < \frac{13}{6}$.

j U badal $\frac{5}{6}$ iyo $\frac{7}{8}$, jajabyo leh hooseeye isku mid ah.

$$\frac{5}{6} = \frac{5 \times 4}{6 \times 4} = \frac{20}{24} \text{ iyo } \frac{7}{8} = \frac{7 \times 3}{8 \times 3} = \frac{21}{24}.$$

Markaa $20 < 21$, $\frac{20}{24} < \frac{21}{24}$, taasi macnaheedu waa $\frac{5}{6} < \frac{7}{8}$.

Tusaale 6: Isugu aadi (hagaaji) jajabyadan $\frac{3}{4}, \frac{13}{15}, \frac{5}{6}$ iyo $\frac{11}{12}$ habka sii yaraanshaha.

Furfuris: U badal jajabyadan jajabyo u dhigma, $\frac{3}{4}, \frac{13}{15}, \frac{5}{6}$ iyo $\frac{11}{12}$ oo leh hooseeye isku mid ah, sidan hoos ku qoran:

$$\frac{3}{4} = \frac{3 \times 15}{4 \times 15} = \frac{45}{60}. \qquad \frac{13}{15} = \frac{13 \times 4}{4 \times 15} = \frac{52}{60}.$$

$$\frac{5}{6} = \frac{5 \times 10}{6 \times 10} = \frac{50}{60}. \qquad \frac{11}{12} = \frac{11 \times 5}{12 \times 5} = \frac{55}{60}.$$

Is barbar dhigida jajabyadan isku dhigma ee leh hooseeyaha isku midka ah, oo u qor habka sii yaraanshaha, waxaad heli sidan $\frac{55}{60}, \frac{52}{60}, \frac{50}{60}, \frac{45}{60}$.

Sidaasi darteed, habka siiyaraanshana ee jajabku waa $\frac{11}{12}, \frac{13}{15}, \frac{5}{6}, \frac{3}{4}$.

SHAQO KOOXEEDKA 3.2

Sameeya koox ka kooban 10, arday, waydii xafiiska diwaanka Iskuulkiina su'aalahan soo socda:

b tirada ardayda fasalka shanaad ee la diwaangaliyay 3dii sano ee ugu dambeeyay.

t tirada ardayda gabdhaha ah ee fasalka 5^{aad} ee la diwaan galiyay 5tii sano ee ugu dambaysay.

j tirada ardayda wiilasha ee fasalka 5aad ee la diwaangaliyay 3dii sano ee ugu dambeeyay, wada falanqeeya si aad uga jawaabtaan su'aalahan soo socda:

i waa maxay jajabka ardayda gabdhaha ah?

ii waa maxay jajabka ardayda wiilasha ah?

LAYLIS 3.3

1 Ku dhufo sareeyaha iyo hooseeyaha mid kasta oo jajabyadan soo socda ah 3, si aad u hesho jajab u dhigma.

b $\frac{5}{3}$ **t** $\frac{4}{7}$ **j** $\frac{11}{12}$ **x** $\frac{14}{15}$ **kh** $\frac{8}{3}$

2 Mid keebaa wayn 3/5 iyo 17/20?

3 Isbarbar dhig jajabyadan soo socda, adoo adeegsanaya calaamadahan (sumadahan) "<", ">" ama "="

b $\frac{3}{8}$ — $\frac{1}{2}$ **t** $\frac{2}{3}$ ——— $\frac{3}{5}$, **j** $\frac{11}{10}$ ——— $\frac{13}{10}$

x $\frac{3}{8}$ — $\frac{2}{7}$ **kh** $\frac{5}{6}$ ——— $\frac{45}{48}$. **d** $\frac{7}{10}$ ——— $\frac{69}{100}$

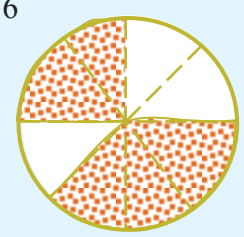
4 Isugu hagaaji jajabyada habka kordhaya,

b $\frac{2}{5}, \frac{23}{25}, \frac{3}{20}, \frac{3}{10}$ **t** $\frac{11}{3}, \frac{15}{4}, \frac{9}{7}$.

5 Isugu hagaaji jajabyada soo socoda habka sii yaraanshaha.

b $\frac{2}{5}, \frac{4}{9}, \frac{21}{50}$, **t** $\frac{4}{5}, \frac{19}{25}, \frac{17}{20}$ **j** $\frac{4}{3}, \frac{5}{8}, \frac{7}{6}$.

6 Eeg shaxanka 3.14, oo ka jawaab midkastoo ka mid ah su'aalahan soo socda. (ka soo qaad in shaxanka loo qayb-qaybiyay qaybo is leeg).

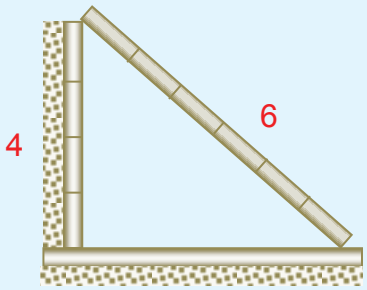


Shaxanka 3.14

b waa maxay qaybta hadhaysaa ee shaxanka?

t waa maxay jajabka inta aan la hadhayn ee shaxanka?

7 Shaxanka 3.15, waa maxay qaybta tiirka la jabiyay. Waa maxay qaybta taagani?



Shaxanka 3.15

8 Guuleed dherarkiisu waa $99\frac{1}{2}$cm khaddar dhererkiisu waa $93\frac{1}{4}$cm intee buu Guuleed ka dheeryahay Khadar?

9 Xariijinta AB ee hoose ayaa loo qaybiyay 20 qaybood oo isleeg, waa maxay qaybta AB, ee gobol kasta oo xariijintan u taagan?

b $\overline{AX}$ **t** $\overline{AY}$ **j** $\overline{AZ}$ **x** $\overline{BY}$ **kh** $\overline{XZ}$

Shaxanka 3.16

10 Lamaanayaasha jajabyada ah ee soo socda ku weebaa isku dhigma?

b $\frac{2}{3}, \frac{8}{12}$ **t** $\frac{3}{4}, \frac{15}{12},$ **j** $\frac{7}{9}, \frac{28}{36},$ **x** $\frac{1}{2}, \frac{75}{140}.$

11 Raadi tirooyinka maqan haddii ay jajabyadu isku dhigmaan.

b $\frac{1}{3} = \frac{\boxed{?}}{9}$ **t** $\frac{1}{\boxed{?}} = \frac{12}{24}$ **j** $\frac{\boxed{?}}{3} = \frac{5}{15}$ **x** $\frac{4}{5} = \frac{8}{\boxed{?}}$

3.4 XISAAB FALLADA JAJABYADA

3.4.1 ISKUGAYNTA IYO KALAGOYNTA JAJABYADA

Fasalkii 4^{aad} waxaad ku soo baratay isku gaynta iyo kalagoynta jajabyada hooseeyayaashoodu ay isku midka yihiin. Ciwaan hoosaadkuna waxaad ku barandoontaa iskugaynta iyo kalagoynta, jajabyada leh hooseeye isku mid ah iyo kuwo hooseeyayaashoodu ay kala duwanyihiin.

A Naqtiinka iskugaynta iyo kalagoynta jajabyada leh hooseeye isku mid ah

Hawlgalka 3.4

1 Ka shaqee kuwan soo socda:

b $\frac{11}{8} + \frac{3}{8}$ **t** $\frac{12}{47} - \frac{7}{47}.$

2 Sideed iskugu dartaa jajabyada hooseeyayaashoodu ay isku midka yihiin?

3 Sideed u kala jartaa jajabyada hooseeyayaashoodu ay isku midka yihiin?

Hawlgalkaasi sare waxaad ku aragtay iskugaynta iyo kalagaynta jajabyada leh hooseeye isku mid ah. Hawlgalkan waxaad ku arki doontaa tusaalooyin kale iyo laylisyo ku saabsan iskugaynta iyo kalagoynta jajabyada leh hooseeye isku mid ah.

Tusaale: ka shaqee oo fududee mid kastoo kuwan soosocda ah.

b $\frac{4}{8} + \frac{6}{8}$ **t** $\frac{13}{17} - \frac{6}{17}.$

Furfuris:

b $\frac{4}{8} + \frac{6}{8} = \frac{4+6}{8} = \frac{10}{8} = \frac{5 \times 2}{4 \times 2} = \frac{5}{4}$ **t** $\frac{13}{17} - \frac{6}{17} = \frac{13-6}{17} = \frac{7}{17}$

Tusaale: ka shaqee oo fududee mid kastoo kuwan soo socda ah.

b $\frac{11}{12} - \frac{3}{12}$ **t** $\frac{306}{65} - \frac{200}{65}$

Furfuris:

b $\frac{11}{12} - \frac{3}{12} = \frac{11-3}{12} = \frac{8}{12} = \frac{2\times4}{3\times4} = \frac{2}{3}$ **t** $\frac{306}{65} - \frac{200}{65} = \frac{306-200}{65} = \frac{106}{65}$

1 Jajab kasta oo Togan $\frac{a}{b}$ oo "c" ay tahay tiro idil oo aan eber ahayn, markaa $\frac{a}{b} = a \times \frac{c}{b\times c}$ markaa waxaanu nidhaa $\frac{a}{b}$ iyo $a \times \frac{c}{b\times c}$, waa jajabyo isku dhigma.

2 Haddii lagu siiyo jajabyo togan $\frac{a}{b}$ iyo $\frac{c}{b}$ markaa kuwan soo socda waa run.

b $\frac{a}{b}+\frac{c}{b}=\frac{a+c}{b}$ **t** $\frac{a}{b}-\frac{c}{b}=\frac{a-c}{b}$, markaa $a > c$.

LAYLIS 3.4

1 ka shaqee oo fududee midkastoo kuwan soo socda ah.

b $\frac{2}{3} + \frac{5}{3}$ **t** $\frac{17}{49} + \frac{31}{49}$ **j** $\frac{53}{86} + \frac{47}{86}$

x $\frac{19}{97} + \frac{63}{97}$ **kh** $\frac{8}{87} + \frac{6}{87}$ **d** $\frac{5}{11} + \frac{7}{11}$

2 Ka shaqee midkastoo kuwan soo socda ah, oo fududee hadday suurtogal tahay

b $\frac{17}{16} + \frac{14}{16}$ **t** $\frac{21}{25} - \frac{14}{25}$ **j** $\frac{12}{10} - \frac{7}{10}$

x $\frac{155}{99} - \frac{110}{99}$ **kh** $\frac{13}{7} - \frac{8}{7}$ **d** $\frac{76}{2} - \frac{51}{2}$

3 ka dhig midkastoo kuwan soo socda ah tiro idil ama tiro dhafan.

b $\frac{7}{4} + \frac{2}{4}$ **t** $\frac{14}{5} + \frac{3}{5}$ **j** $\frac{5}{7} + \frac{4}{7} + \frac{6}{7}$ **x** $\frac{24}{11} - \frac{2}{11}$

B Iskugaynta iyo kalagoynta jajabyada leh hooseeyayaal kala duwan

Ilaa hadda waxaad aragtay iskugeynta iyo kalagoynta jajabyada leh hooseeye iskumid ah. Casharkan xigana waxaad ku barandoontaa iskugeynta iyo kalagoynta jajabyada leh hooseeyaal kaladuwan.

Hawlgalka 3.5

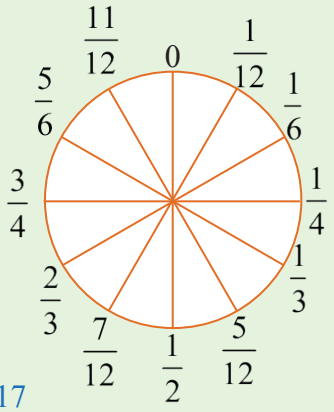
1 **b** Waa maxay qiimaha marka lagudhufto 4, sareeyaha iyo hooseeyaha jajabkan 1/3?

t Waa maxay qiimaha marka lagudhfo 3 sareeyaha iyo hooseeyaha jajabkan ¼

j Waa maxay wadarta natiijada aad ka heshay (b) iyo (t) ?

x Waa maxay farqiga natiijada aad ka heshay (b) iyo (t)

2 Ka shaqee $\frac{7}{12} - \frac{1}{3}$ adigoo hadhaynaya qeybaha shaxanka 3.17, si aad umuujiso farqiga.



Shaxanka 3.17

Si aad u hesho wadarta ama farqiga laba jajab oo hooseeyaashoodu kala duwan yahay, dib ugu magacow jajabyada leh hooseeye isku mid ah, dabadeena iskugee ama kalagoo oo fududee, hadii ay suurtoobayso.

Tusaale 1: Raadi wadarta midkastoo jajabydan soo socda ah

b $\frac{8}{5} + \frac{7}{6}$ **t** $\frac{9}{5} + \frac{7}{10}$

Furfuris:

b U badal 8/5 iyo 7/6 jajabyo leh hooseeye isku mid ah.

$$\frac{8}{5} = \frac{8 \times 6}{5 \times 6} = \frac{48}{30} \text{ iyo } \frac{7}{6} = \frac{7 \times 5}{6 \times 5} = \frac{35}{30}$$

Hooseeyaha ay wadaagaan waa 30.

Sidaasi darteed , $\frac{8}{5} + \frac{7}{6} = \frac{48}{30} + \frac{35}{30} = \frac{48+35}{30} = \frac{83}{30}$

t U badal $\frac{9}{5}$ iyo $\frac{7}{10}$, jajabyo leh hooseeye isku mid ah.

$$\frac{9}{5} = \frac{9}{5} \times \frac{2}{2} = \frac{18}{10} \text{ iyo } \frac{7}{10}$$

Hooseeyaha ay wadaagaan waa 10.

Sidaas darteed,

$$\frac{9}{5} + \frac{7}{10} = \frac{18}{10} + \frac{7}{10} = \frac{(18+7)}{10}$$

$$= \frac{25}{10} = \frac{5 \times 5}{2 \times 5} = \frac{5}{2} \times \frac{5}{5} = \frac{5}{2} \times 1 = \frac{5}{2}$$

Tusaale 2: ka shaqee midkastoo kuwan soo socda ah.

b $\frac{4}{9} - \frac{2}{5}$ **t** $\frac{59}{7} - \frac{3}{2}$

Furfuris:

b $\frac{4}{9} = \frac{4 \times 5}{9 \times 5} = \frac{20}{45}$

$\frac{2}{5} = \frac{2 \times 9}{5 \times 9} = \frac{18}{45}$

Hooseeyaha ay wadaagaan waa 45

Markaa $\frac{4}{9} - \frac{2}{5} = \frac{20}{45} - \frac{18}{45}$

$= \frac{(20 - 18)}{45} = \frac{2}{45}$

Sidaas darteed $\frac{4}{9} - \frac{2}{5} = \frac{2}{45}$

t $\frac{59}{7} = \frac{59}{7} \times \frac{2}{2} = \frac{118}{14}$

$\frac{3}{2} = \frac{3}{2} \times \frac{7}{7} = \frac{21}{14}$

Hooseeyaha ay wadaagaan waa 14

Markaa $\frac{59}{7} - \frac{3}{2} = \frac{118}{14} - \frac{21}{14}$

$= \frac{118 - 21}{14} = \frac{97}{14}$

Sidaas darteed $\frac{59}{7} - \frac{3}{2} = \frac{97}{14}$

Tusaale haasi kor ku xusan waxaynu ka soo qaadan sidan

Jajabyo kasta oo togan $\frac{a}{b}$ iyo $\frac{c}{d}$, markaa waxaa run ah.

1 $\frac{a}{b} + \frac{c}{d} = \frac{a \times d + b \times c}{b \times d} = \frac{ad + bc}{bd}$

2 $\frac{a}{b} - \frac{c}{d} = \frac{a \times d - b \times c}{b \times d} = \frac{ad - bc}{bd}$

Tusaale 3: ka shaqee kuwan soo socda:

b $\frac{5}{6} + \frac{2}{3}$ **t** $\frac{15}{4} - \frac{2}{7}$

Furfuris: waxaa jira laba hab.

b Habka 1aad hooseeyaha labada jajab oo iskumid laga dhigo oo haddana la isku daro,

$\frac{5}{6}$ iyo $\frac{2}{3} = \frac{2}{3} \times \frac{2}{3} = \frac{4}{6}$

Marka $\frac{5}{6} + \frac{4}{6} = \frac{5 + 4}{6} = \frac{9}{6} = \frac{3 \times 3}{3 \times 2} = \frac{3}{2}$

Sidaas darteed $\frac{5}{6} + \frac{2}{3} = \frac{9}{6} = \frac{3}{2}$

Habka 2aad Adeegsiga dhufsana yaraha ay wadaagaan (Dh.Y.W) oo markaa la isku daro.

Dhufsanayaasha 6 waa 6,12, 18……

Dhufsanayaasha 3 waa 3,6,9,12,15,18,……

Dhufsanayaasha ay wadaagaan (Dh.Y.W) waa 6,

Markaa $\frac{5}{6}+\frac{2}{3}=\frac{5+4}{6}=\frac{9}{6}=\frac{3}{2}\times\frac{3}{2}=\frac{3}{2}$

t Habka 1aad hooseeya isku mid kadhig oo kala jar.

$\frac{15}{4}=\frac{15\times 7}{4\times 7}=\frac{105}{28}$ iyo $\frac{2}{7}=\frac{2}{7}\times\frac{4}{4}=\frac{8}{28}$

Markaa $\frac{105}{28}-\frac{8}{28}=\frac{105-8}{28}=\frac{97}{28}$

Sidaas darteed $\frac{15}{4}-\frac{2}{7}=\frac{97}{28}$

Habka 2aad adeegso Dh.y.w oo kala goo,

dhufsanayaasha 4 waa: 8, 12, 16, 20, 24, 28,…,

Dhufsanayaasha 7 waa: 14, 21, 28, 35, 42,…,

Dh, y, w waa 28.

Markaa $\frac{15}{4}-\frac{2}{7}=\frac{7\times 15-4\times 2}{28}=\frac{105-8}{28}=\frac{97}{28}$

Sidaas darteed $\frac{15}{4}-\frac{2}{7}=\frac{97}{28}$

LAYLIS 3.5

1 Raadi wadarta, oo u qor jawaabtana saansaanta ugu fudud

b $\frac{8}{9}+\frac{1}{9}$ **t** $\frac{4}{10}+\frac{5}{10}$ **j** $\frac{7}{8}+\frac{4}{3}$ **x** $\frac{7}{16}+\frac{3}{8}$

kh $\frac{2}{7}+\frac{8}{4}$ **d** $\frac{8}{15}+\frac{2}{3}+\frac{1}{5}$ **r** $\frac{5}{6}+\frac{5}{12}+\frac{1}{4}$ **s** $\frac{7}{9}+\frac{11}{8}+\frac{14}{27}$

2 Ka shaqeee jajabyadan soo socda oo fududee;

b $\frac{7}{8}-\frac{3}{5}$ **t** $\frac{8}{21}-\frac{2}{7}$ **j** $\frac{5}{6}-\frac{5}{12}-\frac{1}{4}$

3 Waxaan ku kharash gareeyaa saddex meelood laba ahaan dhakhligayga cunto, saddex meelood meel ahaana waxaan ku bixiyaa kirada guriga?

b haddii dakhligaygu yahay 600 birr, waa maxay jajab ahaan dakhliga ii soo hadhay?

t imisaan ku kharash gareeyay cunto?

j imisaane ku kharashgareeyay kirada?

4 Marwo Rooda waxay isticmaashaa ¼ oo caronafaqeeye-yaal ah, hadii ay siisay 5/12 walaalkeed, waa maxay jajabka carro-nafaqeeyaha iyada iyo walaalkeed ay isticmaaleen?

5 Saddex nin ayaa qaybsaday liin oo cunay. Labadii nin ee ugu horeeyay waxay cuneen $\frac{1}{4}$ iyo $\frac{3}{11}$ ee liinta siday u kala horeeyaan.? Intee in le,eg oo liin ah ayuu cunay ka saddexaad ?

3.4.2 ISUDHUFASHADA IYO ISUQEYBINTA JAJABYADA

A Iskudhufashada jajabyada

Ciwaan hoosaadkan waxaad ku baran doontaa sida la isugu dhufto laba jajab.

Hawlgalka 3.6

1 si aad u hesho taranta $\frac{1}{3} \times \frac{1}{4}$

saabaanka loo baahan yahay : warqado xariiqyada labajibbaaranaha ah leh, qalin qori midab leh, sanduuq joomateri, masterad.

Hanaanka:-

i fur warqada leh xariiqyada labajibaarne ah sawir ka kooban saddex jiif u tax iyo afar jog u tax.

ii Ku madoobee casaan jiif u tax.

iii Ku midabee joog utaxana huruud (midab jaale ah) oo ka jawaab su,aalahan soo socda.

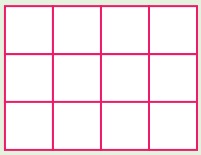
b imisa gobol oo labajibbaaran ayuu shaxankani leeyahay?

t imisa gobol oo labajibbaaran ayaa labajeer la midabeeyey?

j waa imisa jajab ahaan labajibbaaranayaasha labada jeer la midabeeyay?

x ma u malaynaysaa in natiijada aad ka heshay c" ay leeg tahay $\frac{1}{3} \times \frac{1}{4}$?

2 naqil (guuri) oo hadhee qeybta labajibaarane ee xagan hoose lagugu siiyay si loomuujiyo $\frac{1}{3} \times \frac{2}{4}$ (adeegso midabo kala duwan)



Shaxanka 3.18

Si laysugu dhufto jajabyada, iskudhufo sareeyayaasha si aad u hesho taranta sareeyayaasha, oo iskudhufo hooseeyaasha si aad u hesho taranta hooseeyaasha.

Tusaale 1: raadi tarankasta

b $\frac{2}{9} \times \frac{3}{4}$ **t** $\frac{15}{16} \times \frac{4}{5}$

Furfuruis :

b Tallaabada 1: iskudhufo sareeyaha waa $2 \times 3 = 6$

Tallaabada 2: iskudhufo hooseeyaha waana $9 \times 4 = 36$

Sidaas daraadeed $\frac{2}{9} \times \frac{3}{4} = \frac{6}{36} = \frac{6 \times 1}{6 \times 6} = \frac{1}{6}$

t Tallaabada 1: iskudhufo sareeyaha waa $15 \times 4 = 60$

Tallaabada 2: iskudhufo hooseeyaha waa $16 \times 5 = 80$

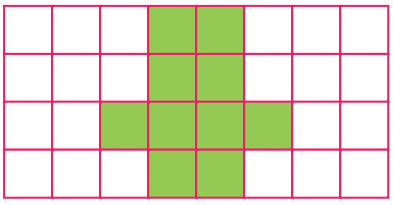
Sidaas daraadeed $\frac{15}{16} \times \frac{4}{5} = \frac{15 \times 4}{16 \times 5} = \frac{60}{80} = \frac{3 \times 20}{4 \times 20} = \frac{3}{4}$

Tusaale 2 : eeg shaxanka 3.19 hoose si aad uga jawaabto su,aalahan soo socda.

b waa imisa jajabka shaxanka inta la hadheeyey?

t waa imisa jajabka shaxanka inta aan la hadhayn?

j Raadi taranta geybaha hadhaysan iyo qaybaha aan hadhaysneyn?



Shaxanka 3.19

Furfuris: wadarta qaybaha = 32

Qaybaha la hadheeyay = 10

Jajabka qaybta hadhaysan = $\frac{10}{32} = \frac{2 \times 5}{2 \times 16} = \frac{5}{16}$

b jajabka qaybta aan hadhaysnayn $\frac{22}{32} = \frac{2 \times 11}{2 \times 16} = \frac{11}{16}$

t taranta jajabka qaybta hadhaysan iyo qaybta aan hadhaysnayn

$$\frac{5}{16} \times \frac{11}{16} = \frac{5 \times 11}{16 \times 16} = \frac{55}{256}$$

Tusaale 3: Raadi taranta oo fududee:

b $\frac{3}{4} \times \frac{4}{5}$ **t** $\frac{5}{8} \times \frac{4}{6}$

Furfuris: **b** $\frac{3}{4} \times \frac{4}{5} = \frac{3 \times 4}{5 \times 4} = \frac{3}{5}$

t $\frac{5}{8} \times \frac{4}{6} = \frac{5 \times 4}{8 \times 6} = \frac{20}{48} = \frac{4 \times 5}{4 \times 12} = \frac{5}{12}$

Tusaalahaasi kor ku xusan waxaynu ka soo qaadaneynaa kuwan soo socda

Hadii $\frac{a}{b}$ iyo $\frac{c}{d}$ ay tahay jajabkasta oo togan $\frac{a}{b} \times \frac{c}{d} = \frac{a \times c}{b \times d} = \frac{ac}{bd}$

Tusaale 4: Raadi taranta oo fududee: $2\frac{3}{4} \times 4\frac{2}{5}$

Furfuris : u badal $2\frac{3}{4}$ iyo $4\frac{2}{5}$ jajab maqumane taasi waa

$$2\frac{3}{4} = \frac{4 \times 2 + 3}{4} = \frac{11}{4} \text{ iyo } 4\frac{2}{5} = \frac{5 \times 4 + 2}{5} = \frac{22}{5}$$

Markaa $2\frac{3}{4} \times 4\frac{2}{5} = \frac{11}{4} \times \frac{22}{5}$

$$= \frac{11 \times 22}{4 \times 5} = \frac{242}{20} = \frac{121}{10} = 12\frac{1}{10}$$

Sidaas darteed $2\frac{3}{4} \times 4\frac{2}{5} = 12\frac{1}{10}$

Si la isugu dhufto laba tiro oo dhafan marka hore u badal tirooyinka jajab maqumane oo markaana iskudhufo, ubadal natiijada qaabka tiro dhafan.

LAYLIS 3.6

1 Raadi taranta midkastoo jajabyadan soo socda ah,

b $\frac{1}{4} \times \frac{5}{4}$ **t** $\frac{3}{2} \times \frac{4}{5}$ **j** $\frac{4}{4} \times \frac{1}{4}$ **x** $\frac{9}{12} \times \frac{4}{3}$

kh $\frac{1}{2} \times \frac{4}{3}$ **d** $\frac{8}{15} \times \frac{6}{5}$ **r** $\frac{8}{9} \times \frac{72}{5}$

2 Guuri (naqil) oo buuxi shaxdan soo socota .

	m	n	m×n
b	$\frac{4}{5}$	$\frac{2}{3}$	
t	6	$\frac{3}{2}$	
j	$4\frac{1}{2}$	$\frac{7}{9}$	

3 Iskudhufo oo fududee midkastoo kuwan soo socda ah.

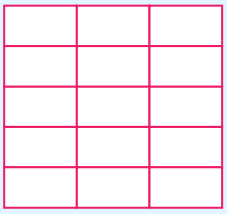
b $8 \times \frac{1}{3}$ **t** $3 \times \frac{1}{8}$ **j** $5 \times \frac{1}{9}$ **x** $7 \times \frac{1}{12}$

kh $\frac{1}{4} \times 12$ **d** $\frac{2}{3} \times \frac{1}{2}$ **r** $\frac{20}{9} \times \frac{3}{5}$ **s** $\frac{3}{4} \times \frac{4}{3}$

4 Iskudhufo oo fududee midkastoo kuwan soo socda ah.

b $2\frac{1}{3} \times 5\frac{1}{6}$ **t** $\frac{2}{3} \times 2\frac{4}{9}$ **j** $8\frac{1}{2} \times 2\frac{1}{8}$

5 Guuri (naqil) shaxanka 3.20 oo hadhee gobolka u taagan $\frac{2}{3}$ ka $\frac{1}{5}$



Shaxanka 3.20

6 Imisa saacadood ayaa ku jira $2 \times \frac{1}{2}$ maalmood?

B Isku qeybinta jajabyada

Ciwaan hooseedkani waxaad ku baran doontaan rogaalada iyo iskuqaybinta jajabyada.

Hawlgalka 3.7

1 Raadi taranta jajabyadan

b $\frac{2}{3} \times \frac{3}{2}$ **t** $\frac{4}{5} \times \frac{5}{4}$

2 Taranta 3/8 iyo midkale waa 1. waa tee tiradaasi?

3 Haddii $\frac{3}{4} \times \frac{c}{d} = 1$ markaa waa maxay qiimaha $\frac{c}{d}$?

Waa maxay xidhiidhka ka dhexeeya $\frac{3}{4}$ iyo $\frac{c}{d}$?

1 haddii taranta labajajab ay tahay 1, jajabkastaaba waa rogaalka ka kale

2 rogaalka jajabka aan eber lahayni waa kala rogida tiradaasi.

Tusaale 1: raadi rogaalka jajabyadan soo socda .

b $\frac{13}{17}$ **t** $3 \times \frac{1}{2}$

Furfuris: **b** rogaalka $\frac{13}{17}$ waa $\frac{17}{13}$

t ubadal $3 \times \frac{1}{2} = \frac{3}{2}$, Rogaalkeeduna waa $\frac{2}{3}$

Tusaale 2: waa maxay rogaalka **b** 1 **t** 0

Furfuris: **b** rogaalka 1 waa 1, sababtoo ah $1 \times 1 = 1$

t 0 malaha rogaal sababtoo ah $\frac{1}{0}$ waa bilaa macno ama uma qaybin kartid tiro eber.

Haddii $\frac{a}{b}$ iyo $\frac{c}{d}$ ay yihiin jajab togan

$\frac{a}{b}$ waa rogaalka $\frac{b}{a}$ iyo $\frac{b}{a}$ waa rogaalka $\frac{a}{b}$, markaa $\frac{a}{b} \times \frac{b}{a} = 1$

Tusaale 3: u qor jawaabaha sida taranta hal tiro oo lagu dhuftay rogaalka takale

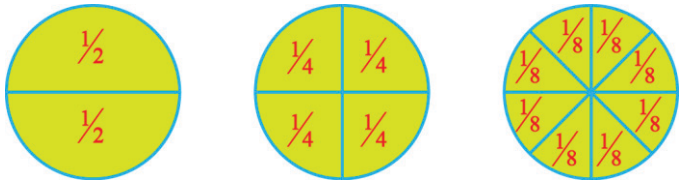
b $\frac{4}{9} \div \frac{3}{4}$ **t** $\frac{11}{13} \div \frac{7}{12}$ **j** $\frac{83}{71} \div \frac{49}{62}$

Furfuris:

b $\frac{4}{9} \div \frac{3}{4} = \frac{4}{9} \times \frac{4}{3}$ **t** $\frac{11}{13} \div \frac{7}{12} = \frac{11}{13} \times \frac{12}{7}$ **j** $\frac{83}{71} \div \frac{49}{62} = \frac{83}{71} \times \frac{62}{49}$

Ilaa iyo hadda waxaad aragtay xidhiidhka ka dhaxeeya jajabta iyo rogaalkeeda. Waxaynu baranayna isku qaybinta jajabyada inagoo adeegsanayna fikirka rogaalka.

Tusaale 4: Shaxanka 3.21 (i) waxaa loo qaybiyay laba badh.
Shaxanka 3.21 (ii) waxaa loo qaybiyay afar
Shaxanka 3.21 (iii) waxaa loo qaybiyay sideed.
Adeegsiga shaxanada sidalooga jawaabo su'aalaha,



i ii iii

Shaxanka 3.21

b imisa afraad baa ku jirta hal badh ?

t imisa sideedaad ayaa ku jira hal- badh ?

Furfuris: **b** $\frac{1}{2}$ waxaa ku jira 2 meelood oo min ¼ ah

waa sidan $\frac{1}{2} \div \frac{1}{4} = \frac{1}{2} \times \frac{4}{1} = \frac{4}{2} = 2$

t $\frac{1}{2}$ waxaa ku jira 4 meelood oo min $\frac{1}{8}$ ah

waa sidan $\frac{1}{2} \div \frac{1}{8} = \frac{1}{2} \times \frac{8}{1} = \frac{1 \times 8}{2 \times 1} = \frac{8}{2} = 4$

Tusaale 5: u qor qaybta saansaanta ugu fufud.

b $\frac{4}{6} \div \frac{2}{3}$ **t** $\frac{6}{7} \div \frac{3}{4}$ **j** $\frac{1}{2} \div \frac{5}{4}$

Furfuris: **b** $\frac{4}{6} \div \frac{2}{3} = \frac{4}{6} \times \frac{3}{2} = \frac{4 \times 3}{6 \times 2} = \frac{12}{12} = 1$

t $\frac{6}{7} \div \frac{3}{4} = \frac{6}{7} \times \frac{4}{3} = \frac{6 \times 4}{7 \times 3} = \frac{24}{21} = \frac{8 \times 3}{7 \times 3} = \frac{8}{7}$

j $\frac{1}{2}\div\frac{5}{4} = \frac{1}{2}\times\frac{4}{5} = \frac{4}{10} = \frac{2\times2}{5\times2} = \frac{2}{5}\times\frac{2}{2} = \frac{2}{5}\times1 = \frac{2}{5}$

markaa waxayu qori karnaa xeerkan guud

Haddii $\frac{a}{b}$ iyo $\frac{c}{d}$ ay yihiin jajabkasta oo togan $\frac{\frac{a}{b}}{\frac{c}{d}} = \frac{a}{b}\times\frac{d}{c} = \frac{ad}{bc}$

LAYLIS 3.7

1 Raadi rogaalka jajabyadan soo socda:

b $\frac{6}{5}$ **t** $\frac{4}{3}$ **j** $\frac{5}{13}$

x $\frac{53}{18}$ **kh** $\frac{43}{16}$ **d** $\frac{7}{8}$

2 guuri (naqil) oo buuxi shaxdan soo socota. Maxaad ku aragtay shaxda?

	$\frac{m}{n}$	$\frac{n}{m}$	$\frac{m}{n}\times\frac{n}{m}$
b	$\frac{1}{6}$		1
t	$\frac{5}{7}$		
j		$\frac{3}{8}$	
x	$\frac{15}{2}$		

3 raadi qaybta oo fududee

b $\frac{1}{4}\div\frac{1}{5}$ **t** $\frac{1}{7}\div\frac{1}{14}$ **j** $\frac{4}{5}\div\frac{3}{6}$

x $\frac{5}{7}\div\frac{11}{10}$ **kh** $\frac{18}{2}\div\frac{9}{4}$ **d** $\frac{22}{33}\div\frac{8}{3}$

4 ka shaqee (bildhaamin : u badal tirooyinka dhafan jajabyo)

b $3\frac{1}{2}\div\frac{7}{8}$ **t** $4\frac{1}{4}\div\frac{17}{8}$ **j** $\frac{7}{5}\div2\frac{4}{9}$

x $4\div\frac{8}{11}$ **kh** $2\frac{1}{2}\div1\frac{1}{4}$

5 Qaybta laba tiro ayaa ah $\frac{4}{3}$, haddii tirada wayni ay tahay $\frac{7}{2}$, raadi tirada yar?

6 Tiro ayaaba ah uun rogaalkeedii, waa maxay tiradaasi? Waa maxay tirada aan lahayn wax rogaal ah?

3.5 XISAAB FALLADA JAJAB TOBANLE YAASHA

3.5.1 ISUGAYNTA IYO ISKUDHUFASHADA JAJAB TOBANLEYAASHA

A Naqtiin iskugaynta jajab tobanleyaasha leh ilaa laba god

Hawlgalka 3.8

1 **b** raadi qaabka jajab ee 0.3

t raadi qaabka jajab ee 0.6

j raadi wadarta jajabyada aad ka heshay b) iyo t), waa maxay wadarta jajab toban lahu?

x miyuu jiraa wax xidhiidha oo ka dhaxeeya wadarta aad ka heshay c) iyo 0.3 + 0.6 ?

2 **b** waa maxay qaabka jajab ee 0.23?

t waa maxay qaabka jajab ee 0.15?

j kala jar jajabta 0.25 iyo jajabta 0.23 waa maxay natiijada jajab tobanle ee aad heshay ?

x miyuu jiraa wax xidhiidha oo ka dhaxeeya wadarta aad ka heshay c) iyo 0.23 -0.15?

Si la isugu daro jajab tobanlaha

- ✓ jajab toban laha u badal jajab , oo isu gee, markaana wadarta u badal jajab tobanle. Ama
- ✓ Jajab tobanlaha isku hoos qor iskuna aadi dhibcaha oo iskugee.

Tusaale 1: iskugee midkastoo kuwan soo socda ah.

b 0.3 + 0.5 **t** 0.2 + 0.37

Furfuris:

b $0.3 + 0.5 = 0.8 = \frac{3}{10}$ iyo $0.5 = \frac{5}{10}$

Sidaas darteed

$$0.3 + 0.5 = \frac{3}{10} + \frac{5}{10} = \frac{3+5}{10} = \frac{8}{10} = 0.8$$

t $0.2 = \frac{20}{100}$ iyo $0.37 = \frac{37}{100}$

Sidaas darteed

$$0.2 + 0.37 = \frac{20}{100} + \frac{37}{100} = \frac{20+37}{100} = \frac{57}{100} = 0.57$$

Tusaale 2: ka shaqee kuwan soo socda:

b $0.45 + 1.2$ **t** $3.1 + 6.74$

Furfuris:

b $\frac{45}{100} + \frac{12}{10} = \frac{165}{100} = 1.65$

Sidaas darteed $0.45 + 1.2 = 1.65$

t $3.1 + 6.74 = \frac{31}{10} + \frac{674}{100} = \frac{984}{100} = 9.84$

Sidaas darteed $3.2 + 6.74 = 9.84$

B Iskugaynta iyo kalagoynta jajabtobanle ilaa iyo saddex go

Hawlgalka 3.9

1 **b** raadi qaabka jajabka ee 1.3 iyo 2.1

t waa maxay wadarta qaabka jajab ee 1.3 iyo 2.1?

j waa maxay qaabka jajab toban leh ee wadarta (b)?

x miyuu jiraa wax xidhiidh ah oo ka dhaxeeya wadarta qaabka jajabtobanle iyo 1.3 + 2.1 ?

2 **b** raadi qaabka ee 0.341 iyo 0.127

t kalagoo qaabka jajab ee 0.127 iyo 0.341

j waa maxay jajab tobanlaha natiijada?

x miyuu jiraa wax xidhiidh ah oo ka dhaxeeya natiijada aad ka heshay (b) iyo 0.341 – 0.127?

Tusaale 1: ka shaqee midkastoo kuwan soo socda adigoo isku hoos qoraya ?

b $0.74 + 0.4$ **t** $2.51 + 8.62$ **j** $9.341 + 2.154$

Furfuris:- joog u tax u qor markaana isku dar

b
$$\begin{array}{r} 0.74 \\ +0.40 \\ \hline 1.14 \end{array}$$

t
$$\begin{array}{r} 2.51 \\ +8.62 \\ \hline 11.13 \end{array}$$

j
$$\begin{array}{r} 9.341 \\ +2.154 \\ \hline 11.495 \end{array}$$

Tusaale 2: ka shaqee kuwan soo socda adigoo is hoos dhigaya

b 9.1 – 3.3 **t** 22.75 – 8.85 **j** 10.431 – 6.792

Furfuris: isku hoos qor jajab tobanlaha oo kalagoo.

b
$$\begin{array}{r} 9.1 \\ -3.3 \\ \hline 5.8 \end{array}$$

t
$$\begin{array}{r} 22.75 \\ -8.85 \\ \hline 13.90 \end{array}$$

j
$$\begin{array}{r} 10.431 \\ -6.792 \\ \hline 3.639 \end{array}$$

Tusaale 3: Bashiir 2 kiiloo oo sonkor ah ayaa wuxuu ku iibsaday 29.50 birr, 3 killoo oo baasta ahna wuxuu ku iibsaday 24.75 birr iyo 5 xabo oo saabuun ah oo uu siistay 27.5 birr.

b waa imisa wadarta kharashkiisu ?

t waa maxay farqiga u dhaxeeya kharashka sonkorta iyo baastada ?

Furfuris:

b qiimaha 2 kg ee sonkorta ah = 29.50 bir

Qiimaha 3 kg ee baastada ah = 24.75 bir

Qiimaha saabuunta = 27.50

Wadarta kharashka waa = 81.75 birr

Wadarta kharashka ee bashiir

t farqiga u dhaxeeya qiimaha sonkorta iyo baastadu waa
29.50 – 24.75 = 4.75 birr.

Tusaale 4: haddii M = 5.24 iyo N= 4.61 markaa qiimee kuwan soo socda :-

b m + n **t** m - n

Furfuris:

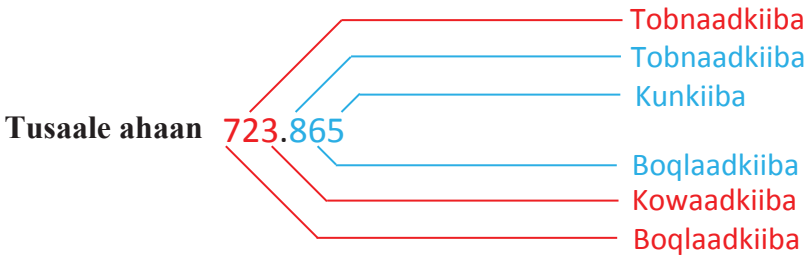
b m + n = 5.24 + 4.61 = 9.85 **t** m - n = 5.24 – 4.61 = 0.63

Isugaynta iyo kalagoynta jajab tobanle waxaa looga shaqeyn karaa ;

1. In jajab tobanlaha la isku hoos qoro iyadoo la isku aadinayo barta dhibicda , ama
2. Jajab toban laha u badal jajab oo iskugee, markaana wadarta u siibadal jajab tobanle.

Shaxanada qiimo- rugeedka ee tirooyinka jajab tobanle.

Boqol	Tobnaad	Koowaad	Barta jajab tobanle	Tabankiiba	Boqolkiiba	Kun kiiba
100	10	1	.	$\frac{1}{10}$	$\frac{1}{100}$	$\frac{1}{1000}$
	1	6	.	3	4	
7	2	3	.	8	6	5



Tusaale 5: ka shaqee midkasta oo kuwan soo socda ah, adigoo jajab tobanlaha u badalaya jajab.

b $0.8 + 0.9$ **t** $0.241 + 7.658$

Furfuris:

b ubadal 0.8 iyo 0.9 jajab

$0.8 = \frac{8}{10}$ iyo $0.9 = \frac{9}{10}$

$0.8 + 0.9 = \frac{8}{10} + \frac{9}{10} = \frac{8+9}{10} = \frac{17}{10} = 1.7$

Sidaas darteed $0.8 + 0.9 = 1.7$

t u badal 0.241 iyo 7.658 jajab

$0.241 = \frac{241}{1000}$ iyo $7.658 = \frac{7658}{1000}$

Markaa $0.241 + 7.658 = \frac{241}{1000} + \frac{7658}{1000} = \frac{241+7658}{1000} = 7.899$

Tusaale 6: ka shaqee midkasta oo kuwan soo socda ah , adigoo u badalaya jajab.

b $4.51 - 2.95$ **t** $0.981 - 0.61$

Furfuris:

b jajab tobanlaha u badal jajab oo kalagoo

$4.51 = \frac{451}{100}$ iyo $2.95 = \frac{295}{100}$

Markaa $4.51 - 2.95 = \frac{451}{100} - \frac{295}{100} = \frac{451 - 195}{100} = \frac{156}{100} = 1.56$

Markaa $4.51 - 2.95 = 1.56$

t jajab tabanlaha u badal jajab oo kalagoo

$$0.981 = \frac{981}{1000} \text{ iyo } 0.61 = \frac{610}{1000} = 0.371$$

Markaa $0.981 - 0.610 = \frac{981}{1000} - \frac{610}{1000} = \frac{371}{1000} = 0.371$

Sidaas darteed $0.981 - 0.61 = 0.371$

SHAQO KOOXEEDKA 3.3

Marka aynu ku shaqaynano jajab tobanle waxaad ubaahan tahay inaad ogaato waxa godkasta oo tirada ka mid ahi ay u taagan tahay. U fiirso tirada jajab tobanlaha ah 231.456, koox ahaana ka jawaaba midkastoo su, aalahani soo socda ah.

1 tirada kor ugu dhawaaq oo maqashii kooxdaada.

2 sheeg god rugeedka godkasta oo ka mid ah jajab tobanlaha lagusiiyay

3 iswaydaarsada natiijada kooxda, kooxda kale oo falanqeeya.

LAYLIS 3.8

1 iskugee jajab tobanlaha soo socda;

b 23.1 + 32.5 **t** 0.11+0.32 **j** 4.7 + 3.42

x 0.528 + 2.4 **kh** 7.459 + 4.507 **d** 62.05 + 3.74

2 Raadi faraqa.

b 5.1 – 4.4 **t** 8.59 – 4.64 **j** 8.701 – 5.815

3 Guuri (naqil) oo buuxi shaxdan soo socota

	ℓ	m	n	ℓ + m – n
b	8.1	3.2	5	
t	0.55	4.21		2.54
j	2.1	0.8	1.66	
x		32.5	23.42	61.92
kh	0.4		0.734	4

4 Waa maxay farqiga u dhaxeeya 0.91 iyo 0.20?

5 Markaad tiro ka jarto 30, natiijadu waa 11.25. Waa maxay tiradaasi?

6 Guuri (naqil) oo dhamaystir shaxdan soo socota.

	Jajab tobanle	Qiimo rugeedka tobnaad	Qiima rugeeka kumaad
b	4563.7	3.2	
t	38.95	4.21	2.54
j	503.846	0.8	

7 Rooda waxay iibsatay 20.5kg oo sonkor ah. Waxay siisay 5.35 kg hooyadeed, 9.40 kg waxay siisay walaasheed. imisa kg oo sonkor ah ayaa u soo hadhay?

8 Xamda waxay ku kharash garaysay 48.75 birr, hilib, 24,85 birr caano, 2.35 birr, macmacaan. Muxuu ahaa wadarta kharashkeedu?

9 cabdi culayskiisu waa 75.6 kg, maxamed culayskiisu waa 98.45 kg.

b waa maxay wadarta culaysyada labada nin?

t waa maxay farqiga u dhaxeeya culaysyada cabdi iyo maxamed.

10 buuga xisaabaadka ee bangiga ay Faadumo ku leedahay waxaa ugu jira 695.93 birr oo kayd ah. 381.35 birr oo hubin ah, waa maxay wadarta bangiga u taala?

11 walaashay waxay haysataa 4.75 birr, aniguna waxaan haystaa 3.50 birr waa imisa wadarta aanu wada haysanaa?

3.5.2 ISKUDHUFASHADA JAJAB TOBANLE

Jajab tobanlaha waa in la iskudhuftaa si la mid ah sidii tirooyinka idil.

Ciwaan hooseedkan waxaad ku baran doontaa iskudhufashada jajab tobaleyaasha.

Hawlgalka 3.10

1 Si aad u hesho taranta 2×0.3

b raadi qaabka jajab ee 0.3

t ku dhufo 2 qaabka jajabka ee 0.3 waa maxay natiijadu?

j waa maxay jajab tobanlaha taranta (t)?

x waa maxay xidhiidhka u dhaxeeya taranta qaabka jajab tobanle iyo 2×0.3?

2 si aad u hesho taranta 0.4×0.5.

b raadi qaabka jajab ee 0.4?

t raadi qaabka jajab ee 0.5?

j waa maxay taranta qaabka jajab ee 0.4×0.5?

x waa maxay natiijada (c) ? Marka qaab jajab tobanle loo qoro.

kh waa maxay xidhiidhka ka dhaxeeya natiijada qaabka jajab tobanle iyo 0.4×0.5?

Howlgalka 3.10 waxaad ku soo falanqayseen sida la isugu dhufto jajab tobanlaha iyo tiro hal god oo idil ah. Waxaa intaa dheer oo aad barandoontaan in badan oo ah iskudhufashada jajab tobanle.

Si aad isgu dhufato jajab tobanle waa inaad raacdaa talaabooyinka hoose:

1. Iskudhufo jajab tobanlaha sidii tiro idil oo kale adigoon waxba tixgalinayn dhibicda.
2. Tiri godadka dhibcaha ee labadaba ku dhuftaha iyo lagu dhuftahaba oo dhig dhibicda taranta dhexdeeda adigoo xaga midig ka soo tirinaya oo u socda xaga bidix.

Tusaale 1: Raadi taranta kuwan soo socda.

b 5×0.35 **t** 3.4×7 **j** 4.154×2

Furfuris:

b
$$\begin{array}{r} 0.35 \\ \times\ 5 \\ \hline 1.75 \end{array}$$
godadka dhibcaha leh ee xaga midig.
tiri tiro isku mid ah oo godad ah ee taranta.

t
$$\begin{array}{r} 3.4 \\ \times\ 7 \\ \hline 23.8 \end{array}$$
halgod oo xagga midig dhibicda ka xigga.
tiri tiro isku mid ah oo godad ah ee taranta.

j
$$\begin{array}{r} 4.154 \\ \times\ 2 \\ \hline 8.308 \end{array}$$

Kudhufo jajab tobanlaha 10, oo jibbaarka 10 ayaa lagu samayn karaa hab gaaban iyada oo barta dhibicda laga soo rarayo xagga bidix ilaa xagga midig hadba intii tiro eber wadata oo lagu dhufto.

Tusaale 2: Raadi taranta midkasta;

b 3.05×10 **t** 2.81×100 **j** 1.234×1000

Furfuris: **b** $3.05 \times 10 = 30.5$ ---- hal god ayay dhibicdu guurtay.

t $2.81 \times 100 = 281$ ---- 2 god ayay dhibicdu guurtay.

j $1.234 \times 1000 = 1234$ ---- 3 god ayay dhibicdu guurtay.

Iskudhufashada jajab tobanlahu wuxuu u baahan yahay talaabooyinka soo socda.

1 isugu dhufo jajabtoban laha sida tiro idil oo kale .

2 tiri godadka xagga midig ka xiga dhibicda ee lagudhuftaha iyo ku dhuftaha.

3 tiri tiro isku mid ah ee godadka xagga midig ilaa xagga bidix ee taranta

Tusaale 3: iskudhufo jajabtobanlahan soo socda .

b 0.6×0.9 **t** 1.2×3.5

Furfuris: b

$$\begin{array}{r} 0.6 \\ \times\ 0.9 \\ \hline 0.54 \end{array}$$

laba godbaa xagga midig ka xiga

laba godbaa xagga midig ka xiga dhibicda ee taranta .

Tusaale 4: haddii qiimaha hal buug uu yahay 4.25 birr, waa imisa qiimaha 9 buug?

Furfuris: 1 buug qiimihiisu waa 4.25?

9 buug qiimahoodu waa = $4.25 \times 9 = 38.25$ bir

LAYLIS 3.9

1 qor wadarta jajab tobanlaha $3.51 + 3.51 + 3.51$ sidii taranta.

2 jalxad ayaa waxaa ku jira 20.05 litir oo biyo ah.Imisa litir oo biyo ah ayay qaadi karaan toban jalxadood oo ay isku mug yihiin tani?

3 raadi taranta jajab tobanlaha, soo socda;

b 2×0.25 **t** 0.115×4 **j** 1.5×8

x 1.8×3.2 **kh** 1.13×3.4

4 raadi taranta;

b 3.42×10 **t** 8.88×100 **j** 34.2×1000

x 0.1×3 **kh** 0.01×2.1

5 guuri (naqil) oo dhamaystir shaxdan soo socota ;

	e	f	e × f
b	2.5	3	
t	7.4	10	
j	9.21	100	
x	0.981	1000	

6 qiimaha halkii mitir ee waaraadka ah waa 23.50 birr waa imisa qiimaha 10 mitir oo la nooc ah taasi?

3.5.3 ISKUQAYBINTA JAJAB TOBANLAHA

Ciwaan hoosaadkan waxaad ku baran doontaa jajab tobanle fufud iyo halgod oo tiro tirsiimo ah, iskuqaybinta halgod oo tiro tirsiimo ah iyo jajab tobanle fudud iyo iskuqaybinta jajab tobanlaha ilaa 3 dhibcood oo jibbaarada 10.

Hawlgalka 3.11

1 raadi qaybta midkastoo kuwan soo socda ah.

b $\frac{4}{0.5}$ **t** $\frac{0.6}{3}$ **j** $\frac{6.44}{14}$

2 raadi qaybta;

b $\frac{7.5}{10}$ **t** $\frac{71.5}{100}$ **j** $\frac{71.5}{1000}$

3 tax tallaabooyinka iskuqaybinta jajab tobanlaha.

Hawlgalkaasi sare waxaad ku soo falanqayseen iskuqaybinta jajabtobanle fudud iyo halgod oo tiro tirsiimo ah iyo iskuqaybinta jajabtobanle loo qaybshay jibbaarka toban. Waxaa intaasi sii dheer oo aad barandoontaa waxyaabo badan oo ku saabsan iskuqaybinta jajab tobanlaha.

Tallaabooyinka iskuqaybinta jajabtobanlaha marka ugu horeysa u badal qaybiyaha tiro idil, adigoo kudhufanaya qaybiyaha iyo laqaybiyaha 10 ama jibbaarka toban.

1 U dhig barta dhibicda ee qaybta dhexdeeda si toos ah, xaga toos uga sareysa barta la qaybiyaha.

2 Haddii aanay tiro idil ku jirin laqaybiyaha, dhig eber xaga sare ee qaybta oo sidaasi usiiwad hanaanka ilaa aad ka gaadhsiiso ama aad dhigto saddex god dhibicda dabadeed.

Tusaale 1: raadi qaybta midkastoo kuwan soo socda ah :

b $\frac{3}{0.6}$ **t** $\frac{0.8}{4}$ **j** $\frac{0.48}{0.4}$

Furfuris: **b** $\frac{3}{0.6} = \frac{3}{0.6} \times \frac{10}{10} = \frac{30}{6} = 5$

Sidaas darteed $\frac{3}{0.6} = 5$, hubin $0.6 \times 5 = 3$.

t $\frac{0.8}{4} = \frac{0.8}{4} \times \frac{10}{10} = \frac{8}{40} = \frac{4 \times 2}{4 \times 10} = \frac{2}{10} = 0.2$

Sidaas darteed $\frac{0.8}{4} = 0.2$. Hubin , $0.2 \times 4 = 0.8$.

j $\frac{0.48}{0.4} = \frac{0.48}{0.4} \times \frac{100}{100} = \frac{48}{40} = \frac{4 \times 12}{4 \times 10} = \frac{12}{10} = 1.2$

Sidaas darteed $\frac{0.48}{0.4} = 1.2$

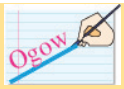
Tusaale 2: isku qaybi midkasta oo jajabtobanlaha ah

b $\frac{0.4}{10}$ **t** $\frac{12.8}{100}$

Furfuris:

b $\frac{0.4}{10} = 0.04$, halgod dhibicda u rar xagga bidix.

t $\frac{12.8}{100} = \frac{12.8}{100} = 0.128$, halgod dhibicda u rar xagga bidix.



Si aad ugu qaybiso jajabtobanle 10,000 ama 1000 xagga bidix dhibicda u rar hadba inta eber ee aad haysato.

LAYLIS 3.10

1 raadi qaybta

b $\frac{2}{0.8}$ **t** $\frac{0.27}{3}$ **j** $\frac{8}{6.4}$

2 raadi qaybta midkasta oo ka mid ah kuwan soo socda ;

b $\frac{0.125}{0.5}$ **t** $\frac{3.04}{0.8}$ **j** $\frac{3}{0.5}$

x $\frac{0.7}{0.35}$ **kh** $\frac{4}{0.25}$ **d** $\frac{6}{1.5}$

3 guuri (naqil) oo dhammaystir shaxdan soo socota.

	d	2.3		1.11	0.8	
b	10d					13.2
t	100d					
j	1000d		420			

4 Khadar waxaa uu iibsaday 5.5 kg oo tamaandho ah lacag dhan 55.00 birr, waa imisa qiima halkii kg ee tamaandhada ahi?

5 raadi qaybkasta.

b $0.21 \div 10$ **t** $10.4 \div 100$ **j** $0.178 \div 1000$

6 aniga iyo saaxiibkay waxaan shalay xoogsanay 30.5 birr, maantana 25.40 birr, lacagtii si isleeg ayaan uqaybsanay. Imisa ayaan helay?

Erayada Furaha ah

- Badalida boqolayda
- Badalida jajabka
- boqolay
- dhufsana yaraha ay wadaagaan
- Farqi
- Hoose
- Hooseeyaha isku midka ah
- Isbarbardhig
- iskudhufashada jajabka
- iskugaynta jajabyada
- Iskuqaybinta jajabka
- jajab
- jajab maqumane iyo tiro dhafan
- Jajab tobanle
- Jajabyada iskudhigma
- Kalagoynta jajabka
- ku dhufte
- lagudhufte
- Laqaybiye
- qayb
- rogaal
- sareeye
- siiyarayn
- taran
- Uqaybsame
- wadar

Soo koobida cutubka 3

- ✓ jajabku waa qayb ka mid ah wax idil
- ✓ jajabka quman waa jajabka sareeyuhu uu ka yar yahay hooseeyaha.
- ✓ jajab maqumanuhu waa jajabka uu sareeyuhu ka wayn yahay ama leeg yahay hooseeyaha.
- ✓ tiro dhafan waa abyoone uu lasocdo jajab quman.
- ✓ sareeyuhu waa tirada sare ee jajabka hooseeyuhuna waa tirada hoose ee jajabka.
- ✓ rogaalka jajabku waa jajabka oo la kala wareejiyo.
- ✓ qiimaha jajabku ismabadalayo haddii sareeyaha iyo hooseeyahaba lagu dhufto tiro isku mid ah oo aan eber ahayn, jajabyada noocaas ah waxaa la yidhaa jajabyada iskudhigma
- ✓ haddii a,b iyo c yihiin tirooyin idil. Halkaas oo $b < c$, $a \times \frac{b}{c} = (c \times a) \times \frac{b}{c}$.
- ✓ boqolaydu waa qaybta ka mid ah wax idil oo loo qaybshay 100 qaybood oo isleeg.
- ✓ haddii aad rabto inaad isbarbardhigto laba ama wax ka badan oo jajabyo ah, midkasta waxaad u badashaa jajabyo isku dhigma oo leh hooseeye iskumid ah , markaa jajabka wayni wa midka leh sareeyaha ugu wayn.
- ✓ haddii $\frac{a}{b}$, ay tahay tiro aan eber ahayn, markaa $\frac{a}{b}$ waa rogaalka $\frac{b}{a}$ oo $\frac{b}{a}$ waa rogaalka $\frac{a}{b}$.

✓ dhamaan jajabyada togan $\frac{a}{b}$ iyo $\frac{c}{b}$, markaa kuwan soo socda waa run.

b $\frac{a}{b}+\frac{c}{b}=\frac{a+c}{b}$ **t** $\frac{a}{b}-\frac{c}{b}=\frac{a-c}{b}$

j $\frac{a}{b}+\frac{c}{d}=\frac{ad+bc}{bd}$

x $\frac{a}{b}-\frac{c}{d}=\frac{ad-bc}{bd}$ halkaas oo ad > bc.

✓ dhamaan jajabyada toga nee $\frac{a}{b}$ iyo $\frac{c}{b}$, markaa kuwan soo socda waa run.

b $\frac{a}{b}\times\frac{c}{d}=\frac{ac}{bd}$ **t** $\frac{a}{b}\div\frac{c}{d}=\frac{a}{b}\times\frac{d}{c}=\frac{ad}{bc}$

✓ iskugaynta iyo kalagoynta jajab tobanlaha waxaa looga shaqeyn karaa:

b isku hoos qorida jajabyada iyadoo toos la isugu aadinayo barta dhibcaha ee jajabka ee mid kasta ama .

t ubadalida jajabtobanlaha jajab oo markaana la isku daro ama la kalagooyo oo ugu danbayn tana natiijada loo badalo jajab tobanle.

Laylis guud

1 Kuwan soo socda kuweebaa ah jajab qumman ?

b $\frac{5}{6}$ **t** $\frac{24}{11}$ **j** $\frac{71}{100}$ **x** $\frac{25}{14}$ **kh** $\frac{92}{47}$

2 Kuwee baa ah jajab maqumane su, aasha (1) ?

3 Fududee midkasta oo jajabyadan soo socda ah

b $\frac{34}{51}$ **t** $\frac{19}{57}$ **j** $\frac{46}{50}$ **x** $\frac{75}{100}$ **kh** $\frac{88}{33}$

4 Ubadal jajabyadan soo socda tiro dhafan.

b $\frac{5}{3}$ **t** $\frac{23}{5}$ **j** $\frac{18}{7}$ **x** $\frac{31}{9}$ **kh** $\frac{892}{9}$

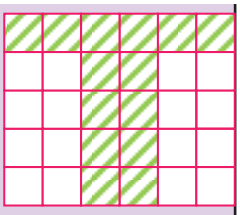
5 Raadi laba jajab oo u dhigma midkastoo kuwan soo socda ah.

b $\frac{3}{2}$ **t** $\frac{8}{7}$ **j** $\frac{19}{4}$ **x** $\frac{9}{10}$ **kh** $\frac{69}{31}$

6 Tixraac shaxanka 3.22 oo ka jawaab su, aalahan soo socda.

b waa maxay boqolkiiba inta la hadheeyay shaxanka ?

t waa maxay qaybta aan lahadhayn ee shaxanku ?



Shaxanka 3.22

7 Raadi wadarta

b $\frac{3}{7}+\frac{5}{7}$ **t** $\frac{4}{9}+\frac{7}{9}$ **j** $\frac{5}{6}+\frac{3}{8}$ **x** $\frac{3}{4}+\frac{2}{25}$

kh $\frac{3}{10}+\frac{4}{7}$ **d** $\frac{3}{8}+\frac{4}{7}$ **r** $\frac{11}{42}+\frac{14}{60}$ **s** $\frac{3}{133}+\frac{4}{95}$

8 Kalagoo midkastoo kuwan soo socda ah .

b $\frac{8}{7}-\frac{7}{11}$ **t** $\frac{7}{9}-\frac{3}{4}$ **j** $\frac{8}{5}-\frac{3}{7}$

x $\frac{3}{10}-\frac{5}{40}$ **kh** $\frac{11}{21}-\frac{3}{14}$

9 Raadi rogaalka midkastoo kuwan soo socda ah.hadii ay suurtogal tahay.

b $\frac{4}{13}$ **t** $\frac{8}{41}$ **j** $\frac{99}{100}$ **x** $\frac{1}{22}$ **kh** 1 **d** $\frac{0}{2}$

10 Guuri (naqil) oo buuxi shaxdan soo socota.

	Taranta	Jajabyo		qayb
	$\ell \times m$	ℓ	m	$\ell \div m$
b		$\frac{7}{8}$	$\frac{5}{6}$	
t		$\frac{5}{9}$	$\frac{10}{11}$	
j		$\frac{3}{40}$	$\frac{5}{8}$	
x		$\frac{11}{13}$	$\frac{17}{22}$	

11 U qor kuwan habka siiyaraanshaha

b $\frac{1}{3}, \frac{2}{9}, \frac{5}{12}$ **t** $\frac{3}{11}, 1, \frac{2}{13}, \frac{1}{5}$

12 Weedhahan soo socda kuweebaa run ah? Kuwee baa been ah?

b rogaalka $\frac{2}{3}$ waa $\frac{12}{8}$.

t $\frac{2}{0}$ waa jajab

j $\frac{3}{11}$ way ka wayn tahay $\frac{3}{12}$

x $\frac{8}{7}$ waa jajab qumman.

13 Raadi taranta

b $\frac{2}{3} \times \frac{6}{4}$

t $\frac{24}{35} \times \frac{7}{6}$

j $\frac{105}{39} \times \frac{13}{7}$

x $5\frac{2}{3} \times 4\frac{3}{5}$

kh $2\frac{1}{3} \times 2\frac{1}{2}$

d $3\frac{3}{4} \times 2\frac{5}{6}$

14 Raadi qaybta midkastoo kuwan soo socda ah.

b $\frac{5}{9} \div \frac{4}{3}$

t $\frac{13}{2} \div \frac{8}{3}$

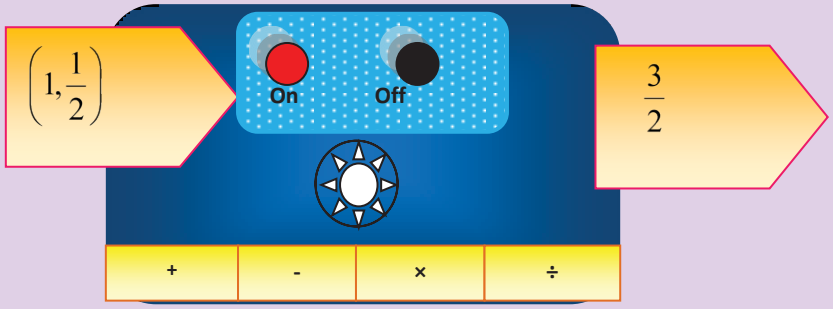
j $\frac{15}{11} \div \frac{20}{33}$

x $4\frac{1}{5} \div 5\frac{3}{8}$

kh $2\frac{1}{3} \div 1\frac{1}{2}$

d $3\frac{1}{6} \div 2\frac{3}{4}$

15 Adeega mishiinka furfurista masalooyinka ee shaxanka 3.23, si aad ugu badasho labadan tiro ee soo socda ee lammaanaha ah, wadarta, farqiyo, tarano iyo qaybo. Ogow markaa wareeg sameeyaha waa la badalayaa jog u tax kasta.



Shaxanka 3.23

16 Ka shaqee kuwan soo socda oo fududee,

b $1.78 + 4.7$

t $6.14 + \frac{15}{92}$

j $1.304 + 12.457$

x $6.4 - 3.9$

kh $9.71 - 2.84$

d $14.361 - 5.015$

r 2.3×0.6

s 3.21×1.1

sh $0{,}315 \times 4.2$

dh $\frac{6}{0.5}$

c $\frac{60.48}{1.2}$

g $\frac{0.072}{0.36}$

17 Qiimaha hal ukun ah waa 1.40 birr, waa imisa qiimaha 17 xabo oo ukun ah?

18 Haddii qiimaha toban digaagadood ay yihiin 526.50 birr, waa imisa qiimaha halkii digaag?

19 Culayska Aadan waa 68.5kg, culayska Daa, uudna waa 72.75kg, waa imisa wadarta culaysyadoodu ?

20 Kharashka tukaamaysiga ee bilaha ah ee Aamina ayaa lagu taxay shaxdan hoose. Tixraac shaxda oo ka jawaab su, aalahan soo socda.

Noocyada tukaamaysinga	Sonkor	Saabuun	Bun	Cusbo
Qiimaha	28.50	24.75	27.50	5.10

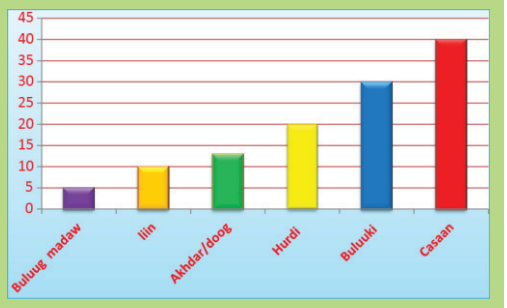
b waa maxay wadarta kharashka ee tukaamaysiga Aamina ?

t waa maxay farqiga u dhaxeeya kharashka ugu badan iyo kharashka ugu yar ee alaabaha?

21 Waa in tiradee lagu dhuftaa tani 2.45, si loo helo 245?

22 Waa imisa haddii 27.6 loo qaybiyo 10? 100?

Cutubka 4aad



XOG-URURINTA

UJEEDDOOYINKA CUTUBKA

Dhamaadka cutubkani waxaad awoodi doontaa inaad

- *Ka samayso garaaf-laydiyeed xog lagu siiyay.*
- *Turjunto (akhridaa) garaaf-laydiyeed la sameeyay*
- *Sharaxdo waxa looga jeedo cel-celiska urur tirooyin ah.*
- *Xisaabiso celceliska xog lagu siiyay.*

TUSMOOYINKA MUHIIMKA AH

4.1 Faahfaahin badan oo dhisida iyo turjumida garaaf-laydiyeedka ah

4.2 Celceliska tirooyinka

Erayada furaha ah

Soo koobida

Laylisyada guud

HORDHAC

Xog ururintu waxay la xidhiidhaa ururinta warbixinta iyo soo koobidiisa, cutubkan waxaa loogu talogalay inuu bixiyo aqoon aasaasiya oo ku saabsan xogta iyadoo la adeegsanayo garaaf-laydiyeed iyo xisaabinta celceliska ee xog lagu siiyay. Waxa jira tusaalayaal iyo laylisyo shaqo fasal ah, kuwaas oo kaa caawinaya inaad adeegsato aqoonta aad ka hesho nololmaalmeedkaaga maalin laha ah.

4.1 FAAHFAAHIN BADAN IYO TURJUMIDA GARAAF LAYDIYEED

Hawlgalka 4.1

1 Maxaad uga baahan tahay inaad xog muujiso adigoo adeegsanaya garaaf-laydiyeedyo?

2 Waligaa miyaad aragtay garaaf-laydiyeedyo lagu dhajiyay darbiga Xafiiska iskuulkiina?

3 Guuri (naqil) shaxdan soo socota oo ka buuxi tirada saacadaha aad todobaadkii hore waxbaratay?

maalinta	Tirada saacadaha wax labartay
Axad	
Isniin	
Salaasa	
Arbaca	
Khamiis	
Jimce	
sabti	

4 Muuji saacadaha wax barashada adigoo adeegsanaya garaf-laydiyeed.

Garaaf- laydiyeed waa shaxan kaas oo leh jiitimo laydi ah kuwaas oo dhererkoodu uu saamigal la yahay qiimaha ay u taagan yihiin. Sawirada garaaf- laydiyeedka waxaynu u fiirsanaysaa qodobadan soo socda.

1 Jiitimaha qaabka laydi ahi way is cabbir leegyihiin

2 Jiitimaha waa lakala soocayaa waxaana loo dhaxaysiinayaa masaafad is ballac leh.

Garaaf- laydiyeed waxay faa'iido badan u yeelan karaa habab kala duwan

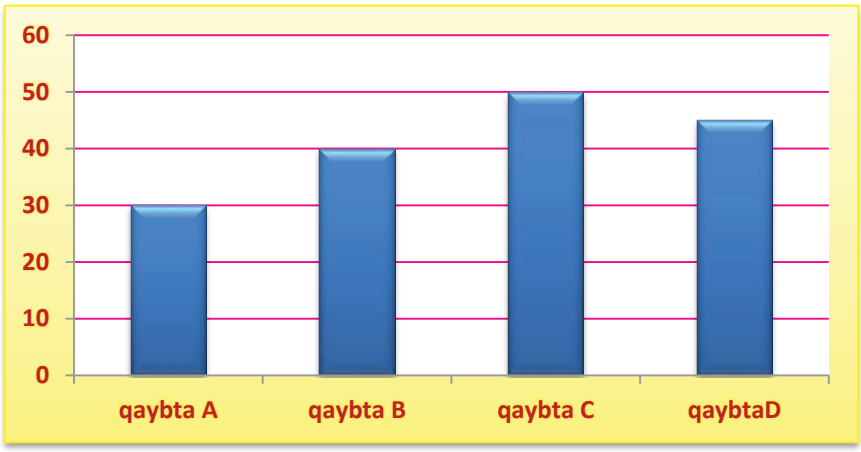
1 Xaqiiqa ka helida garaafku waa hal nooc ka mid ah fasirida (turjumida).

2 Isbarbardhiga xogta waa nooc kale oo fasiraada ah.

3 Inta badan xog baad ka qaadataa garaaf laydiyeedka oo waxaad u adeegsataa inaad ku xaliso dhibaatooyinka.

Tusaale 1: garaaf-laydiyeedkan soo socdaa wuxuu ina tusayaa tirada ardayda fasalada shanaad ee afar qaybood.

Garaaf- laydiyeedka ardayda fasalka shanaad.



Garaafka 4.1

Adigoo fiirinaya garaaf- laydiyeedka ka jawaab su'aalahan soo socda.

1 Imisa ardaybaa ku jira qaybta B?

2 Qaybteebaa ugu arday badan?

3 Imisa arday ayaa ku jira qaybta B oo aan qaybta "A" ahayn?

Furfuris:

1 Waxaa ku jira 40 arday oo fasalka shanaad ah qaybta B.

2 Qaybta C waxaa ku jira arday ka badan qaybaha kale.

3 Waxaa jira 10 arday oo dheeri ah oo qaybta B ah oo aan qaybta A, ku jirin.

Taasi waxa weeyi B waxaa ku jira 40 arday, qaybta "A" waxaa ku jira 30 arday.

40 - 30 = 10 "B" ku jira.

SHAQO KOOXEEDKA 4.1

1 Falanqeeya faa'iidooyinka soo bandhigida xogta ee garaaf-laydiyeedyada halkii shax laga isticmaali lahaa.

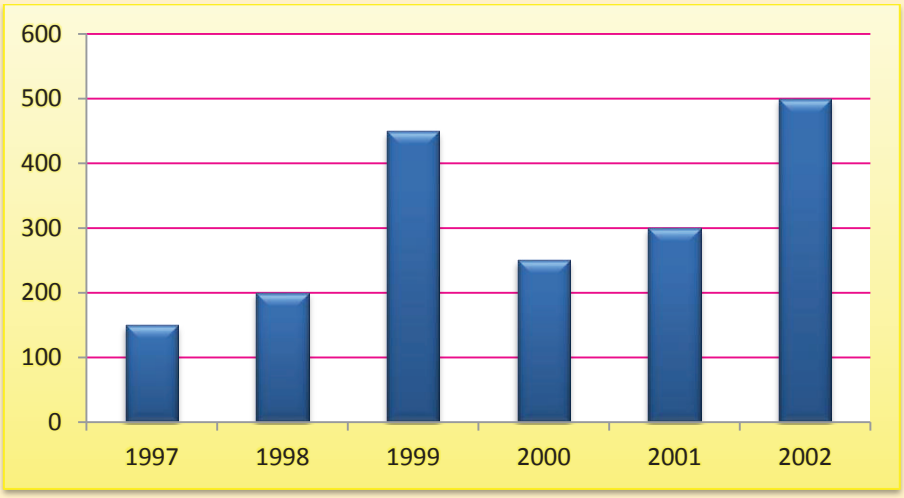
2 Ururiya xogta da'da ardayda fasalkiina, ku muujiya warbixinta aad ururiseen idinkoo adeegsanaya garaaf- laydiyeed, oo ka jawaab su'aalahan soo socda?

b Imisa arday ayay da'doodu tahay 11 sano?

t Imisa ardaybaa ay da'doodu u dhaxaysaa 12 iyo 14 sano?

3 Macaashka uu sameeyay shirkada A, ayaa waxaa lagu muujiyay garaaf-laydiyeedka hoose. Adeegso garaaf-laydiyeedka si aad uga jawaabto su'aalahan raacsan.

Macaashka ay samayso shirkada A



Garaafka 4.2

b Maxay ahayd faa'iidada ugu badan? Iyo waliba sanadkee?

t Waa maxay farqiga u dhexeeya faa'iidada ugu badan iyo ta ugu yar?

j Intee in leeg oo faa'iido ah ayay ka kordhiyeen sanadkii 2001, sanadkii kale ee 1998?

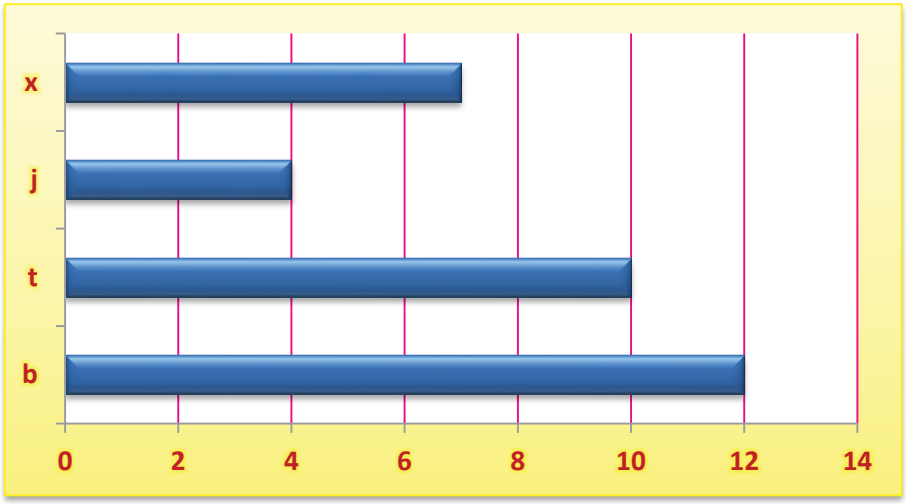
Kh Waa imisa wadarta faa'iidadu laga soo bilaabo 1997 ilaa 2002?

1 Marka la sameeyo garaaf laydiyeed waxaa fudud in la adeegsado xogta kadib marka lagu soo qoray ama la isugu soo dubariday shaxda.

2 Garaaf laydiyeed jiif ahaan.

Tusaale 2: shaxdan hoose waxay ina tusaysaa iibinta noocyo kala duwan oo qalimaan ah oo dukaan yaal. Sawir garaaf- laydiyeed jiifa adoo muujinaya xogta.

Nooca	Tiro	Tirada qalimaanta
b	### ### //	12
t	### ###	10
j	////	4
kh	### //	7



Garaafka 4.3

LAYLIS 4.1

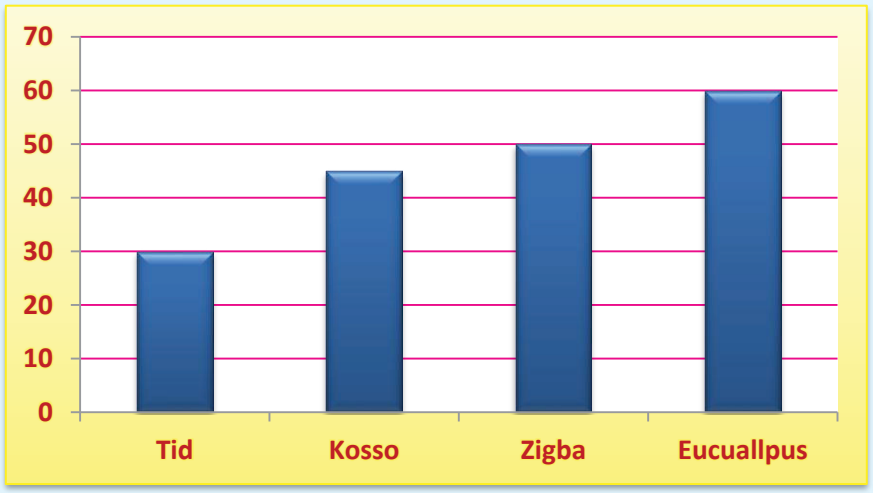
1 Samee garaaf- laydiyeed ku saabsan bunka ay Itoobiya dhoofiso adoo raacaya xogtan hoos ku qoran.

sanadka	1970	1971	1972	1973	1974
Inta la dhoofiyo tan ahaan	220	250	300	340	430

b Labadee sano dhexdee ayay dhoofinta badani dhacday?

t Is-barbar dhig xogta sanadaha 1971 iyo 1974, adoo ka eegaya garaaf-laydiyeedka aad sawirtay.

2 Garaafkan hoose wuxuu muujinayaa diwaangalinta ugu badnayd ee geedaha dhaadheer, Itoobiya qaarka mid ah (mitir ahaan).



Garaafka 4.4

3 Adeegso garaaf- laydiyeedka sare ee 4.4, oo ka jawaab su'aalahan.

b waa imisa jooga ugu dheer ee Tid?

t dhirtee baa ugu dheer?

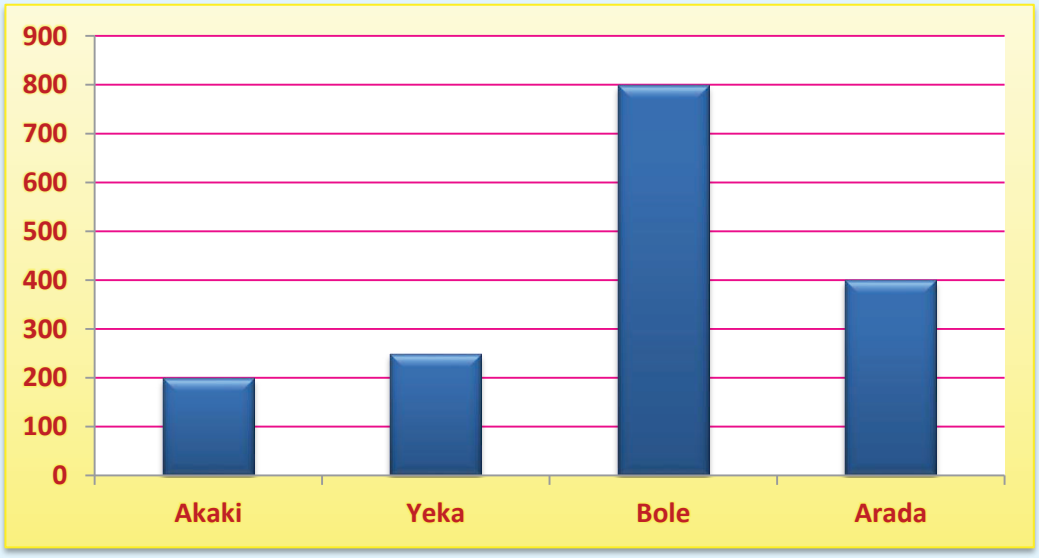
j hal geed ayaa dhererkiisu yahay laban laabka ku kale. Waa kee geedahaasi?

4 Warbixintan soo socota waxay bixineeysaa calceliska cimriga xayawaano kaladu-wan.

xayawaan	Celceliska cimrigaa (sanado)
Bisad	11
Ri'	12
Faras	23
Libaax	10
bakayle	7

Adeegso tallaabooyinka oo dhis garaaf- laydiyeedka xogta sare.

5 Garaafkan hoose wuxuu muujinayaa tirada dadka ee Afar xaafadood magaalada addis-ababa ah (kumanaan)



Garaafka 4.5

b Xaafadeebaa ugu dad badan? **t** Xaafadeebaa ugu dad yar?

j Waa imisa dadka ku nooli Arada, Bole iyo Akaki?

x Xaafad ayaa tirada dadka ku nooli ay yihiin xaafad kale badhkeed waa tee xaafadaasi?

6 Si loo baadho koritaanka bisada ayaa dhakhtar xayawaaneed wuxuu miisaamay bisad saddexdii bilood. Wuxuu ku qoray natiijadii uu helay shaxdan soo socota:

Da'doo bilo ah	Culayska (g)
3	190
6	300
9	350
12	420
16	475
18	500

7 Ka dooro tuduc buug aad jeceshahay.

b waa maxay shanta xaraf ee alfabetka ee aad u malaynayso inay ugu soo noq-noqodka badan yihiin.

t tiri inta jeer ee xarafkastaa ku soo noqday tuducda dhexdeeda. Ku qor shax natiijada.

j sawir garaaf- laydiyeed si aad u muujiso natiijada.

4.2 CELCELISKA TIROOYINKA

Ciwaan hoosaadkan waxaad ku baran doontaa sida loo xisaabiyo xogta iyo sababaha loo xisaabiyo celceliska.

Hawlgalka 4.2

1 Cabdi wuxuu keenay xisaabtii 70, Englishkii 60 iyo soomaaligii 80, imtixaan lagu saxayay 100, waa maxay celceliska dhibcihiisu?

2 Waa maxay celceliska culayska ardayda fasalkaagu?

3 Waa maxay celceliska dhererka xubnaha qoyskaagu oo aad ku jirto adiguna?

4 Maxaad ugu baahan tahay celceliska urur tiro ah?

Celceliska xogta waxaa lagu xisaabin karaa iyadoo la isku darayo dhammaan tirooyinka oo loo qaybiyo tirada xadiga ururka lagugu siiyay

$$\text{Celcelis} = \frac{\textit{wadarta xaddiyada}}{\textit{Wadarta tirada xadiyada}}$$

Ujeedada ugu muhiimsan ee xisaabtani celcelisku waa in la soo saaro hal qiime kaasi oo loo adeegsado in uu u taagnaado dhammaan xogtii.

Tusaale 1: ururinta xadiga roob ee bishii Ogosto shan cisho oo ka mid ah, magaalada Adama dhexdhexaada waa 500, 550, 450, 400 iyo 600mm.

Raadi celceliska xaddiga roobka la helay shantaa cisho gudahood.

$$\text{Cel-celis} = \frac{\textit{wadarta xadiga roobka ee shanta cisho}}{\textit{Tirada maalmaha}}$$

$$= \frac{500 + 550 + 450 + 400 + 600}{5} = 500\text{mm}$$

SHAQO KOOXEEDKA 4.2

Ka dhiga laba kooxood fasalkiina oo u kala bixiya kooxda A iyo kooxda B.

b cabbira dhererka xubin kasta oo kooxda ka mid ah.

t xisaabiya celceliska dhererka ee koox kasta.

j kooxdee baa A iyo B leh celceliska ugu badan?

Tusaale 2: Raadi celceliska dakhliga maalinlaha ah oo nin tukaanle ahi uu helo alaabada uu iibiyo.

maalinta	Xaddiga uu iibiyo (birr)
isniin	381.00
Salaasa	650.00
Arbaca	525.00
Khamiis	683.00
Jimce	654.00
Sabti	827.00
Axad	718.00

$$\text{Celceliska iibka} = \frac{\textit{wadarta alaabada lay iibiyay}}{\textit{Tirada maalmaha}}$$

$$= \frac{381+650+525+683+654+827+718}{7} = 634\text{birr}$$

Sidaasi darteed, celceliska iibka maalin kasta waa 634birr.

LAYLIS 4.2

1 Magaalada Arsi heer kulka duhurka ee labada todobaad ee ugu horeeya ee bisha September, waxay ahayd 18^0. 13^0 15^0 22^0 18^0 14^0 12^0. Raadi celceliska heerkulka todobaadka?

2 Ninbaa baa ku socdaalay gaadhi 3maalmood, wuxuu waday/kexeeyay.

maalintii 1aad xawaarihiisu wuxuu ahaa 45 km/hr

maalintii 2aad xawaarihiisu wuxuu ahaa 40 km/hr

maalinkii 3aad xawaarihiisu wuxuu ahaa 38 km/hr.

muxuu ahaa celceliska xawaarihiisu?

3 Arday ayaa keenay dhibcahan soo socda, kadib markii uu galay imtixaan tijaabo ah, oo lix maado ah sidan hoos ku qoran:

maadada	Dhincaha
Xisaab	8
Ingiriis	10
Taariikh	9
Somali	6
Saynis	5
Sifik	4

Raadi celceliska uu ardaygu keenay.

4 Miisaanka toban caruura oo xaafad gaar ah ayaa loo diwaangaliyay sidan soo socota.

Ilmaha	A	B	C	D	E	F	G	H	I	J
Celceliska(kg))	12	15	18	20	25	30	22	35	37	26

Raadi celceliska culayska.

5 Inta ku jirta lix bogos oo kabriid ah ayaa la tiriyay, waxaana la helay natiijooyinkan hoos ku xusan:

43, 42, 44, 47, 46, 48

Raadi celceliska inta kabriid ee bogoska kujirta.

6 Dhibcaha toban arday oo imtixaan galay ayaa waxay ahaayeen 50,60,45, 20, 70, 90, 25, 30, 40 iyo 30. Raadi celceliska dhibcaha.

7 Celceliska 25, 26, 44 iyo "X" waa 32. Raadi qiimaha "X"?

8 Raadi celceliska midkasta oo ka mid ah tirooyinkan soo socda;

b 1, 2, 3, 45

j 72, 64, 68, 76, 65, 75, 70.

kh 256, 258, 272.

t 9, 10, 12, 15, 14

x 33, 35, 37

Erayada Furaha ah

- ✓ celcelis
- ✓ Dhidibada “X” iyo “Y”.
- ✓ Garaaf- laydiyeed
- ✓ heer/cabir
- ✓ tirada la diwaangaliyay
- ✓ wadar
- ✓ Xogta

Soo koobida cutubka 4

Garaaf-laydiyeedyada waxaa loo adeegsadaa;

- ✓ Xaqiiqada oo si fudud loo akhriyo
- ✓ Samaynta isbarbardhigida
- ✓ Xalinta masalooyinka.

Marka aan sawirayno garaaf- laydiyeed waxaynu u fiirsanaynaa qodobadan soo socda.

- ✓ Garaaf- laydiyeedyadu waa inay is ballac leekaadaan.
- ✓ Inta u dhaxaysa labada laydiyood ee isku xigaa way isleeg tahay.
- ✓ Dooro heerka (cabirka) ugu haboon
- ✓ Garaafku waa in uu yeeshaa ciwaan haboon.
- ✓ Garaafka waxa uu leeyahay labada dhidib ee “X” iyo “Y”.

Ujeedada ugu muhiimsan ee xisaabtan celcelisku waa inaad go’aamiso in hal tiro uu u taagnaado ururka tirooyinka qornaa.

Si aad u hesho celceliska xog lagu siiyay,

- ✓ Raadi wadarta dhammaan xogta.
- ✓ U qaybi tirada xogta la ururiyay.

Laylis guud

1. Magacaw saddex isticmaal oo garaaf- laydiyeed ah.
2. Raadi talaabooyinka la raaco marka la sawirayo garaaf- laydiyeed.
3. Shaxdan soo socota waxay ina tusaysaa tamarta loo adeegsaday hawlgalada lagu cabbiray kilocalories daqiiqadiiba.

hawl	Kilocalories/daqiiqad
Socod	7
Orad	10
Dabaal	14
Wareegid	8

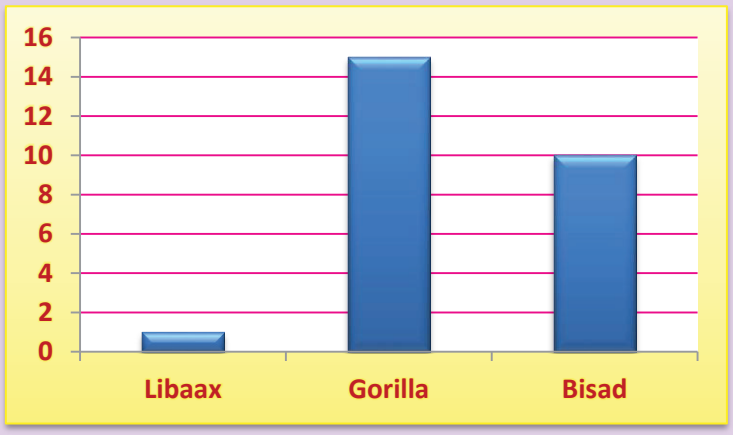
b dooro cabbirka ugu haboon oo sawir garaaf- laydiyeed.

t Adoo ku salaynaya garaafka ka jawaab su'aalahan soo socda.

i hawshee ayaa u baahan tamar badan daqiiqadiiba?

ii hawshee ayaa u baahan tamar yar daqiiqadiiba?

4 Adeegso garaaf- laydiyeed hoose si aad uga jawaabto su'aalahansoo socda. Caadaysiga hurdada ee xayawaan gaar ah ee maalintii.



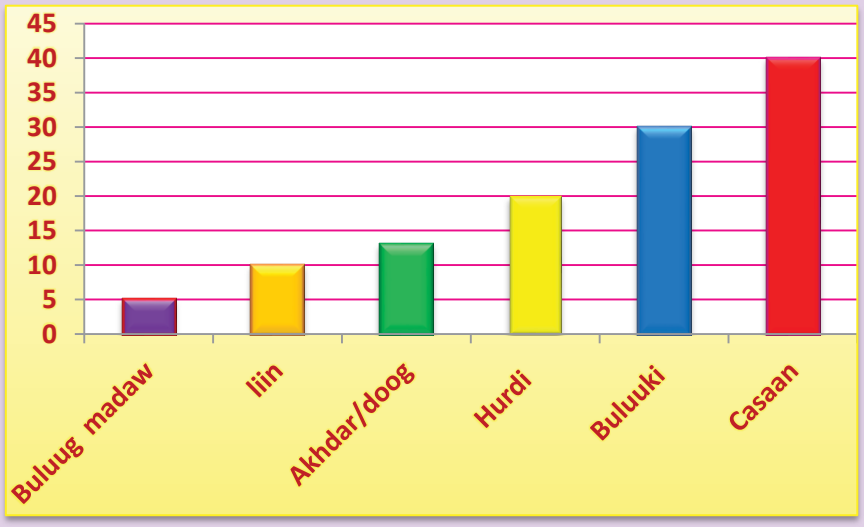
Shaxanka 4.6

b Imisa saacadood ayay bisadu soo jeedaa maalintii?

t Imisa saacadood ayuu Gorilluhu seexdaa maalintii?

j xayawaankeebaa ugu hurdo yar?

5 halkan waxaa ah garaaf muujinaya midabada ardaydu ay jecel yihiin.



Shaxanka 4.7

b midkeebaa u muuqda inuu yahay ka ugu caansan?

t Labadee midab ayaa marka la isku daro u muuqda sida casaankoo kale?

j Midabkee ayay doorteen 20 arday? 10 arday?

x Hal midab baa saddex jeer u muuqda sida midkale, keebuu ahaa kaasi?

6 Sheeg u jeedada xisaabinta celceliska.

7 Qor talaabooyinka sida loo helo celceliska xogta.

8 Halkan waxaa ku qornaa tiro koobka da'da oo ah lix arday oo fasalka 5^{aad} oo laba qaybood ah.

Qaybta A	12	11	13	11	14	11
Qaybta B	15	14	10	11	12	16

b Raadi celceliska da'da ardayda ee qayb kasta.

t Qaybtee baa celceliska ugu sareeya leh?

9 Bashiir wuxuu iibiyaa hal-xabo digaagad ah maalintii,muddo todobaad ahayd. Qiimaha iibka waata xaga hoose laguugu muujiyay.

Maalinta	Axad	isniin	salaaa	arbaca	Khamiis	jimce	sabti
Lacagta (birr)	63	44	44	48	44	44	49

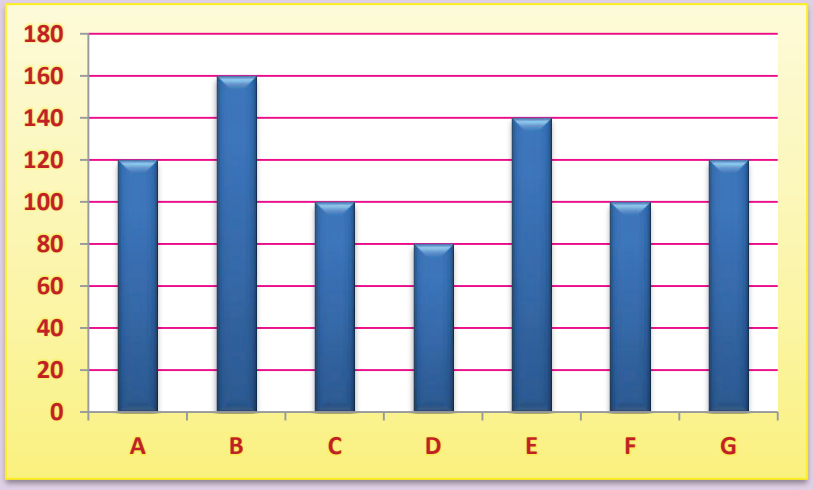
Raadi xaddiga celceliska iibka ee todobaadkii.

10 Raadi celceliska xogtan soo socota.

b 21, 9, 16, 67, 13 **t** 286, 341, 152, 224, 435.

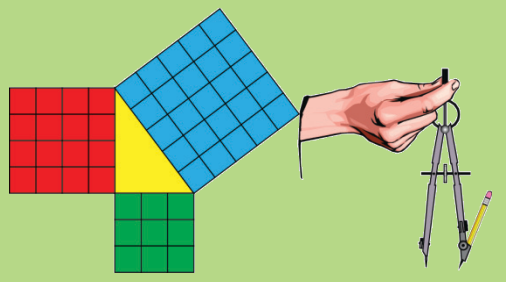
j 27, 14, 23, 6, 9, 15, 6.

Garaafka hoose waxaa uu muujinayaa dhererada ardayda ee fasalka gaar ah. Akhri garaafka oo raadi celceliska dhererka.



Shaxanka 4.8

Cutubka 5aad



SHAXANADA JOOMATARIGA IYO CABBIRAADA

UJEEDDOOYINKA CUTUBKA

Dhamaadka cutubkani waxaad awoodi doontaa inaad

- *Ogaato(garataa) astaamaha dhidib wanqareedka iyo waliba inaad aqoontan u adeegsato dhismaha.*
- *Kalabadhid xariijimaha iyo xaglaha.*
- *Garato hal beega (digrii) aanad awoodo in aad cabirto inta ay le'eg tahay xagal lagu siiyay.*
- *Fahanto, isticmaashana qaacidada bedka si aad u soo saarto bedadka laydiyada iyo labajibbaarayaasha.*
- *Fahanto, isticmaashana qaaciidooyinka mugga si aad u soo saarto mugga adkaha ka samaysana dhinacyada laba jibbaarane iyo birisamyada laydiyeed muggooda.*

TUSMOOYINKA MUHIIMKA AH

HORDHAC

Cutubkan dhexdiida waxaad awoodi doontaa inaad sawirto xariiqyo barbaroolaha iyo xariiqyo is jara iyo waliba waxaad ku baran sida wax loo sawiro ayadoo la adeegsanayo urur laba jibbaaranayaal ah, (qalab), lammaane kombas ah iyo mastarad. Waxaad qeexi doontaa, cabbiri doontaa, kalana saari doontaa astaamihiisana waxaa lagu baran doonaa wareeg iyo badadka laba jibbaaranaha iyo laydiyadana waa la nakhtiimi doonaa. Sawirada Adkaha wajiyadiisu yihiin laba jibbaaranaha iyo birisam laydiyeedka ayaa la sawiri doonaa, waana la midabayn, muggagoodana waa la heli ayadoo adkayaashan laga buuxinayo, hel-saddex jibbaarane (unitcubes).

5.1 XARIIQAHA

5.1.1 SAMAYNTA (DHISIDA) XARIIQAHA IS-JARA (ISGOYNAYA) IYO KUWA BARBARADA AH

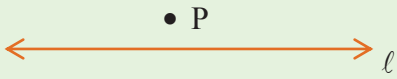
Xariiq toosan waa urur baro ah oo isu tagga, kuwaas oo aan lahayn ballac, laakiin waa la dheerayn karaa, ayadoo labada dhinacba loo kala fidin karo.

Xariiqda ayaan ku tilmaan sanaynaa, inakoo qaadanayna laba barood oo kasta oo ka mid ah xariiqda dusheeda. Haddii;

B iyo T ay yihiin laba barood oo ku dul dhaca xariiq lagu siiyay, dabadeed waxaan siin karnaa xariiqda marta labada barood sumad $\overleftrightarrow{BT}$: xariiqyada ku dul-dhaca sallax way is-jaraan (isgooyaan) ama waa barbaro. Qayb hoosaadkan, waxaad ku baran doontaa sida loo dhiso (sameeyo) xariigaha is gooya iyo kuwa barbarada ah.

Hawlgalka 5.1

Buugaaga qorista waxaad ku sawirtaa xariiq iyo bar aan ku dul-dhicin xariiqa.



Sawirka 5.1

1 Adigoo isticmaalaya mastarad waxaad sawirtaa xariiqo inta aad doontid oo mara barta jaran, xariiqda L imisa xariiqood ayaad sawirtay? Mid? Laba? Saddex? Badan?

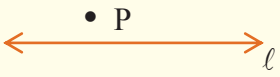
2 Sawir inta aad doonto oo xariiqood oo mara barta lagu siiyay. Imisa xariiqood oo ka mid ah xariiqahan ayaan gooynin xariiqda L? mid? Laba? Saddex? In badan?

3 Su'aalaha 1 iyo 2 muhimada aad ku soo gabagabayn lahayd waa maxay?

Hawlgalka 5.1 gabagabooyinkan ayaa laga samayn karaa.

Bar lagu siiyay oo aan ku dul dhicin xariiq lagu siiyay waxaa mara

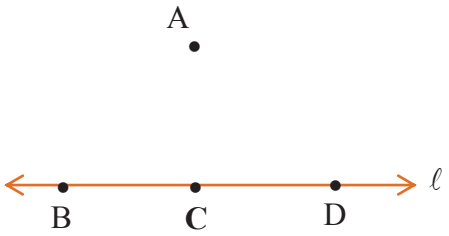
1 Xariiqyo badan oo jara xariiqda lagu siiyay waa laga sawiri karaa.



2 hal xariiq oo kaliya oo la barbar dhigo xariiqda lagu siiyay ayaa laga sawiri karaa.

Xariiqdan waxaa lagu magacaabaa xariiqda barbarada la ah xariiqda **L**, sawirka 5.2.

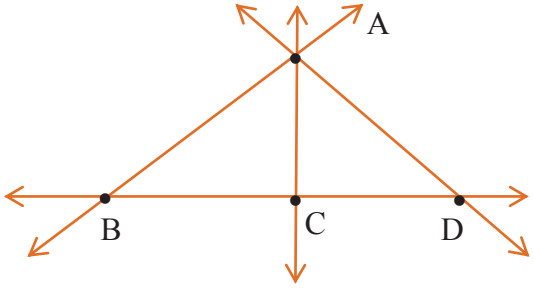
Tusaale 1: Sawirkan hoose ku guuri buugaaga qorista dabadeed sawir 3 xariiqood oo mara A ka jarana xariiqda ℓ baraha B, C, D.



Sawirka 5.2

Furfuris:

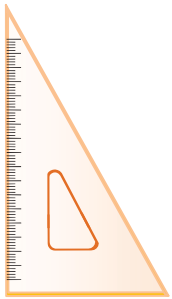
AB, AC, iyo AD waxay ka jaraan ℓ baraha B, C, D sida ay isugu xigaan.



Sawirka 5.3

Aan eegno sida loo sawiro xariiqyo barbaro la ah xariiqda L oo mara bar aan ku dul dhicin xariiqda L.

Qalabka laba jibbranuhu waa qalab xisaabeed la adeegsado marka la dhisayo Qotome maraaya bar dibada ka ah xariiqa la doonayo in qotome loo dhiso.



Sawirka 5.4

SHAQO KOOXEEDKA 5.1

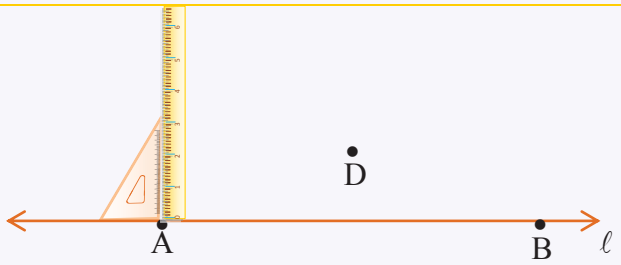
Shaqo kooxeedan waxaan ku baran doonaa talabooyinka loo baahan yahay in la fuliyo marka la sawirayo (dhisayo) xariiq barbar u ah xariiq la ina siiyay oo mara bar dibada ka ah xariiqa na la siiyay inaga oo adeeg sanayna qalabka loo yagaano seed Is kuweer iyo mastarad.

Talaabooyinka Loo Baahan yahay:

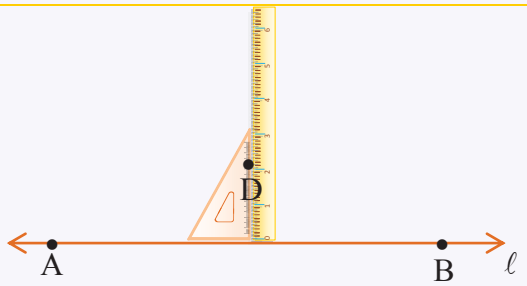
1 Sawir xariiqda L iyo bar aan ku dul dhicin xariiqda L.

2 Dul-dhig qalabka laba jibbaaranaha gacmahiisa xagasha quman ah mid ka mid ah xariiqda dusheeda, adigoo ka bilaabaya barta A ama B.

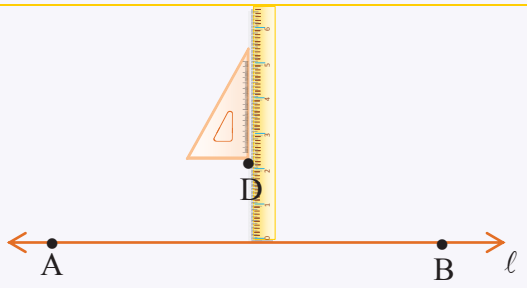
3 Mastarad dul-dhig dhinaca kale ee qalabka labajibaaranaha ah.



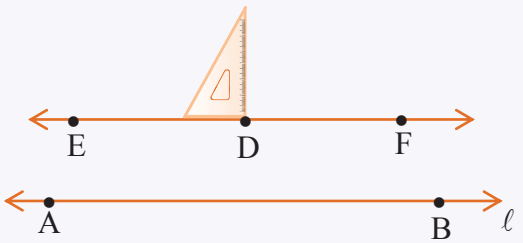
4 Riix laba jibbaaranaha iyo mastaradaadaba AB dusheeda ilaa mastaradu ay marayso barta D.



5 Dul-riix qalabka laba jibbaarka ah mastarada dusheeda xaga sare ilaa dhinaca hoose ee laba jibbaaranuhu uu gaadho barta D.



6 Sawir xariiq marta D qalabka laba jibbaaranaha hoostiisa, adigoo ku haynaya qalabka laba jibbaaranaha bar cayiman. Dabadeed EF waa xariiq barbaro la ah xariiqda L oo marta barta D.



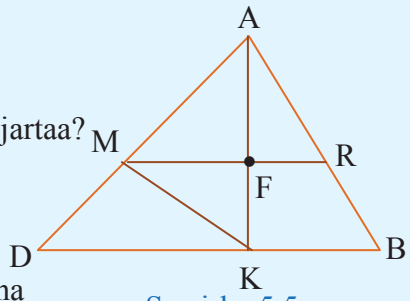
LAYLISKA 5.1

1 Adigoo isticmaalaya sawirka

b magacow 3 xariiqood oo mara M

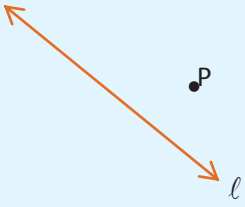
t $\overline{MF}$ miyay jartaa $\overline{BA}$? Bartee ayay ka jartaa?

j imisa xariiqood oo mara barta B oo barbaro la ah $\overline{KA}$ ayaad sawiri kartaa?



Sawirka 5.5

2 Ku guuri sawirka buugaaga qorista, dabadeedna sawir shan xariiqood oo mara barta P jarana xariiqda L.



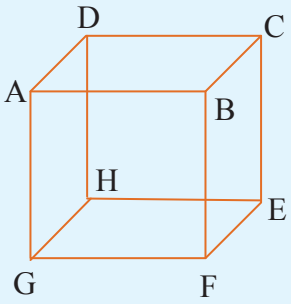
Sawirka 5.6

3 Aan qaadano sanduuq laydiyeed

b magacow saddex lamaane oo xariiqood oo barbaro ah

t magacow 2 lamaane oo xariiqyo is-jara ah

j halkee ayay iska jaraan $\overline{BF}$ iyo $\overline{EF}$?



Sawirka 5.7

4 Haddii ay laba xariiqood is-jaraan imisa meelood ayay iska jaraan?

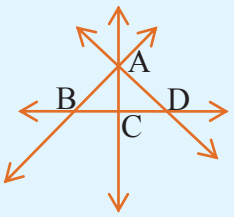
5 Wax yaalaha aad ku aragtid fasalkaaga dhexdiisa, ka bixi tusaalayaal ina tusaya xariiqyo is-jara iyo xariiqo barbaro ah.

6 Sawirkan

b halkee ayay $\overline{AC}$ ka jartaa $\overline{BC}$

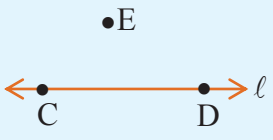
t miyay $\overline{AD} \| \overline{BC}$? Waayo?

j halkee ayay $\overline{AB}$, $\overline{AC}$ iyo $\overline{AD}$ ku kulmaan?



Sawirka 5.8

7 Sawirka 5.9 adigoo isticmaalaya qalabka labajibbaaranaha iyo mastarad sawir xariiqyo mara baraha E iyo F oo barbaro la ah CD miyay xariiqda marta E barbaro la tahay xaariiqda marta F?



Sawirka 5.9

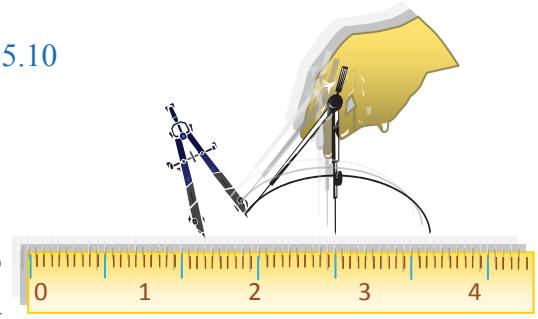
5.1.2 KALA BADHIDA XARIIJIN LAGU SIIYAY

Qaybtan waxaad ku baran doontaa sida xariijin lagu siiyay loo kala badho ayadoo la isticmaalayo qalabada gooba Beeg iyo mastarad.

Ogow: xariijinta AB waa urur ka kooban baraha A iyo B iyo dhamaan baraha u dhexeeya A iyo B, Baraha waxaa la yidhaahdaa bar-dhammaadka xariijinta.

Sawirka 5.10

Marka aan dhisayno dhismo joomatari, waxaan isticmaalaynaa laba shay (qalab) oo muhiim ah. Gooba beeg iyo mastarad.



- Gooba beeg waa qalab loo isticmaalo in lagu sawiro goobada ama qaanso.
- Mastarada waxaa loo isticmaalaa in laysku xidho laba barood, adoo isugu xidhaya xariiq ama xariijin.

Aan eegno hawlgalada soo socda:

Hawlgalka 5.2

1 Imisa barood ayaa xariijinta dusheeda ku dhaca?

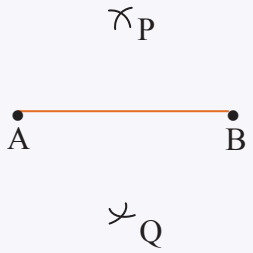
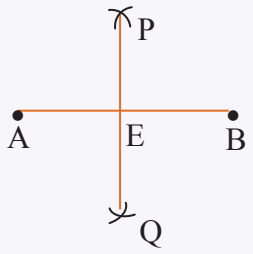
2 Imisa barood oo xariijinta ah ayaa labada meelood oo isle'eg u qaybiya xariijinta? Maxaad u bixin barta labada meelood oo isle'eg u qaybisa xariijinta?

3 Imisa xariiqood oo mara barta xariijinta u qaybisa labada meelood ee isle'eg ayaad sawiri kartaa? Maxaad u bixin xariiqahan? Imisa ka mid ah xariiqahan ayaa ku qotoma xariijinta?.

4 Miyaad ku tilmaami (dhigi) kartaa barta xariijinta badha? Miyaad ku tilmaami kartaa bar badhtanka xariijinta adigoo isticmaalaya kombaska iyo mastarada?

Talaabooyinkan soo socda waa lagama-maarmaan si xariijinta laba meelood oo isle'eg loogu qaybiyo ayadoo la isticmaalayo kombas iyo mastarad. U fiirso si degan.

DHISMAHA 1AAD:

Talaabo 1aad: dul-dhig kombaska labada cidhif ee xariijinta mid ka mid ah, kombaska afkiisa kala fur ama gacanku ha ka dheeraado xariijinta badhkeed, sawir Laba goobo gobol oo Midna xariijinta ka Sareeyo midna ka hooseeyo	
Tallaabada 2aad: ayadoo kombaska afkiisa intii kala furan yahay, macnaha gacanku aanu isbedelin kombaska saar-dhinaca kale ee xariijinta, dabadeedna ku samee laba goobo gobol oo midna ka sarayso xariijinta midna ka hoosayso, u bixi meesha goobo gobaladu iska jaraan P iyo Q.	
Talaabada 3aad: isku xidhka PQ adigoo isticmaalaya mastarada ku soo qaad barta ay isku jaraan PQ, iyo AB ay tahay E, dabadeed E waa barta u qaybisa AB, laba meelood oo isle'eg.	

LAYLISKA 5.2

1 Sawir BQ oo dhererkeedu yahay 10sm.

b tilmaan bar-badhtanka adiga oo isticmaalaya mastarada.

t tilmaan bar badhtanka adigoo isticmaalaya kombas iyo mastarad.

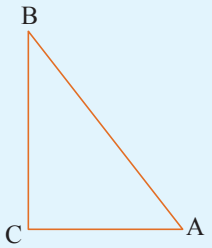
j b iyo t ma waxaad heshay bar isku mid ah.

2 Sawirka 5.11, meelee.

b bar badhatanka BC adigoo isticmaalaya Kombaska iyo mastarada una bixi E.

t bar badhtanka AC una bixi F.

j dhererka EF waa imisa? Isbarbar dhig EF iyo BC?



Sawirka 5.11

3 Sawir xariijinta AB oo dhererkeedu yahay 20 sm. Laba isleeg u qaybi adigoo isticmacmaalya kombaska iyo mastarada, u bixi A. imisa xariiqood ayaa mara barta A? dhammaan xariiqyadani miyay yihiin A iyo B kuwa u qaybiya AB laba meelood oo isleeg.

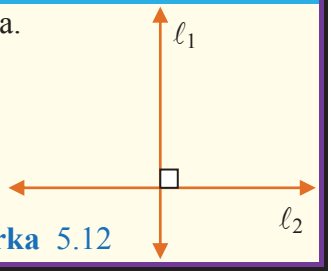
4 Dhismaha kowaad ee tallaabada kowaad ee xagga sare maxaa dhici haddii uu gacanku ka gaaban yahay barta xariijinta dhererkeeda.

5.1.3 SIDA LOO DHISO XARIIQ KU QOTONTA XARRIIQA LAGU SIIYAY

Tusmo hooseedka cutubkan waxaad ku baran doontaa laba dhismayaal oo kale, kuwaas oo ah dhisida xariiqa ku qotoma, bar ka mid ah xarriiqa lagu siiyay iyo xariiqa ku qotoma bar aan ku dhicin xariiqada lagu siiyay dusheeda.

Xasuus:

labada xariiqood ee sameeyay dhaha xariiqyo isku qotoma. Haddii L_1 ay ku qotonto L_2 waxaan u qornaa $L_1 \perp L_2$, waxaan u akhrinaa L_1 waxay ku qotontaa L_2.



Sawirka 5.12

Hawlgalka 5.3

1 Bar ku taala xarriiqa dusheeda imisa:

b xariiqood ayaad ku sawiri kartaa, oo mara.

t xariiqyo ku qotoma miyaad ku sawiri kartaa?

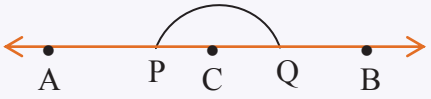
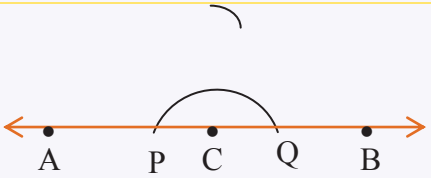
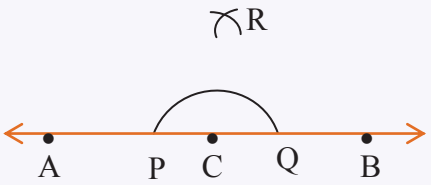
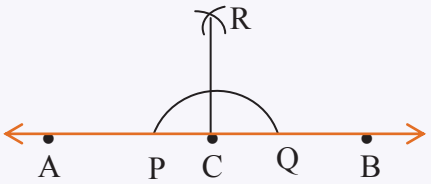
2 Bar ku taala meel aan ahayn xariiqda dusheeda imisa:

b xarooqood ayaa mara?

t xariiqo ku qotoma miyaad sawiri kartaa?

Hadda aan fiirino sida loo dhiso(sameeyo), xariiq ku qotonta barta C oo ku taalla xarriiqda BT.

Dhismaha 2aad:

Tallaabada 1aad: qaado barta C oo ku dul dhacda AB.	
Tallabada 2aad: gacanka aad doonto kala fidi kombaska adiga oo xudunta ka dhigaya sawir goobo-goobo ka jarta AB, baraha PQ. Sawir	
Tallaabada 3aad: adiga oo ku haynaya kambaska barta P gacankan ka waynaynaya dhererka P iyo C, sawir goobo ka sareeya Xariiqda. Sawir	
Tallaabada 4aad: isagoo kombasku furan intii gacankii hore in la mid ah xudunta ka dhigo Q, dabadeedna sawir gobo-goobo xagga sare ee xarriiqda. Sawir.	
Tallaabada 5aad: isku xidh RC kaasoo ku qotoma xariiqda maran barta C. Sawir.	

SHAQO KOOXEEDKA 5.2

Shaqo kooxeedkan waxaad ku dhisi doontaa xariiq ku qotonta barta lagu siiyay oo aan xariiq lagu siiyay kudul oolin. Raaci tallaabooyinkan dhisan.

Tallaabada 1aad: sawir xarriiq, qaadana barta C oo aan ku dul-dhicin Xariiqda.

Tallaabada 2aad: komabaskaaga saar barta C, dabadeed gacanka aad doonto kombaska fur kuna samee goobo-goobo jarta xarriiqda, kasoo qaad in goobo-gobolku ka jiro xariiqda R iyo S, (haddii goobo gobolka jira, waayo xariiqda labaad dhinac u kala jiid Xariiqda).

Talaabada 3aad: kombaska saar barta R, dabadeed gacan ku haboon, ku sawir, goobo-gobolka (goobo-badhkeed) hoosaysa xariijinta.

Tallaabada 4aad: Gacan isku mid ah adigoo isticmaalaya kombaska saar barta S, sawir goobo-gobol, jara goobo-gobol jara, goobo-gobolkii aad ku samaysay tallaabadii 3aad. U bixi meesha ay isku jaraan T. isku xidh CT. dabadeed CT waxay ku qotontaa xariiqda lagu siiyay.

LAYLISKA 5.3

1 Sawir xariijin 20sm dhererkeedu yahay qaado bar u jirta 13 sm, cidhifka xariijinta, dabadeed dhis xariiq ku qotonta oo marta bartaas.

2 Sawir xariijin CD, qaado barta A oo ka saraysa xariijinta, samee xariiq ku qotonta xariijinta CD, oo marta barta A.

3 Xariiq lagu siiyay, ka qaado laba barood oo kala duwan, dabadeed dhis (samee) laba xariiqood oo ku qotoma labadaas barood? Xariiqyadani ma barbaraa?

5.2 XAGLAHA IYO CABBIRKA XAGLAHA

Tusmo hoosaadkan cutubka wali waxaaad ku baran doontaa, waxyaalo kale oo muhiim ah oo fikradaha joomatariga, xagal waxaad qeexi doontaa, sheegina doontaa geeska iyo gacmaheeda, cabbiri doontaa, sawiri doontaa, una kala saari doontaa xaglaha kooxo kala duwan oo ku salaysan cabbiradooda, waxaa kale oo aad ku baran doontaa sida xagal loogu qaybiyo laba meelood oo isle'eg adigoo isticmaalaya kambas iyo mastarad.

5.2.1 XAGLAHA

Hawlgalka 5.4

1 Qaado laba falaadhood is dul dhig labada falaadhood, ka soo qaad in midi ku wareegayso bar dhamaadka L, takalana ay taagan tahay.

   b inta ayna kala furnaan miyuu kordhayaa marka fallaadha L wareejinayaan, madashu meeshii ay ahayd?

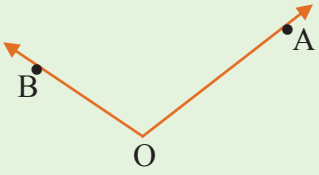
   t intee in le'eg ayay kala furan yihiin marka fallaadha la wareejinayaa, ay ku qotonto fallaadha aan la dhaqaajinayn.

   j intee in leeg ayay kala furan yihiin marka labada falaadhood ay si iska horjeed ah iskugu toosan yihiin.

   x intee in leeg ayay kala furan yihiin marka ay falaadhu soo samayso wareeg buuxa ee ay halkeedii ku soo noqoto?

2 Miyuu jiraa magac uu leeyahay inta labada falaadhood ay kala furan yihiin?

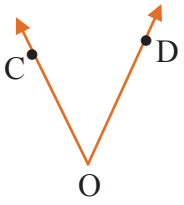
3 Bixi tusaale nololmaamlmeedkaaga la xidhiidha oo la mid ah inta falaadhuhu kala furnaayeen sida su'aasha (1) hawlgalka aan halka sare kusoo aragnay waxay ku siinaysaa fikradaha ku saabsan xagal. Xagal waa inta laba falaadhood ay kala furan yihiin ee u dhaxaysa, taasi oo ay ku kulmaan bar.



Sawirka 5.13

Falaadhaha sameeya xagal waxaa la yidhaahdaa gacmaha xagasha (dhinacyada) barta ay iskugu yimaadaana waxaa la yidhaahdaa geeska. Sawirka 5.13 BOT waa xagal.

Tusaalaha 1aad: Sawirka 5.14 OC iyo OD, waa laba falaadhood oo ku kulma barta O, haddaba COD waa xagasha ay OC iyo OD ay yihiin gacmihiisa O, tahay geeskiisa waxaajira siyaabo kala duwan oo loo magacaabo xagasha.

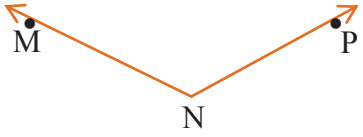


Sawirka 5.14

Qaar ka mid ah waa:

1 Haddii ay jirto xagal qudha geeska lagu siiyay. Xarafka ku qoran ayaa noqon kara magaca xagasha.

Tusaalaha 2aad: Magacow xagasha sawirka 5.15

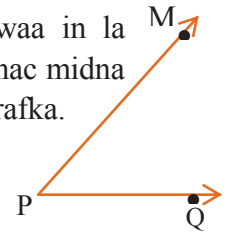


Sawirka 5.15

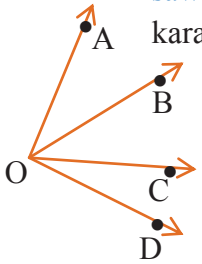
Furfures: maadaama oo ay jirto xagal kali ah oo ka samaysan geeska N, xagasha waxa lagu magacaabi karaa N ama ∠N ama N.

2 Habka ugu caansan ee lagu magacaabi karo xagashu waa in la isticmaalo saddex xaraf oo ay laba yihiin kuwa labada dhinac midna badhtanka la dhigayaana tahay xarafka ku qoran geeska xarafka.

Tusaalaha 3aad: aan tixgalino xagasha ka muuqata sawirka 5.16, xagashan waxa lagu magacaabi karaa sida ∠MPQ ama ∠MPQ ama ∠MPQ.



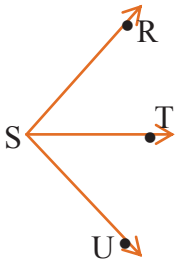
Sawirka 5.16



Sawirka 5.17

Ogow: marka ay jiraan in ka badan hal xagal ah oo ka samaysma hal gees oo qudha magaca xagasha waxaa u taagnaa saddex xaraf, halkii lagu qori lahaa xarafka geeska ku qoran sawirka 5.17 ee xagga midigta waxaa jira xaglo badan oo ka samaysma geeska O, haddii loo bixini magaca xaglaha xarafka ku qoran geeska waa lagu wareeri.

Tusaale: ∠AOB iyo ∠COB waa laba xaglood oo kala duwan oo ka samaysma geeska O, sidaas daraadeed haddii loo bixiyo xaglahan ∠O waa qalad.



Sawirka 5.18

Tusaalaha 4aad: Sawirka 5.18, imisa xaglood ayaa ka samaysma geeska S? tax dhamaantood

Saddex xaglood ayaa ka samaysma S, xaglahanina waa ∠RSU, ∠ RST iyo ∠TSU.

3 Sidoo kale waa iska caadi si xaglaha loo cadeeyo in la isticmaalo xarfaha yar-yar ee Afsoomaaliga sida b, t, j, x, y, IWM, xarfaha giriiga sida α, β, θ, δ, γ, ∈ IWM. Tirooyin sida 1, 2, 3-------iwm.

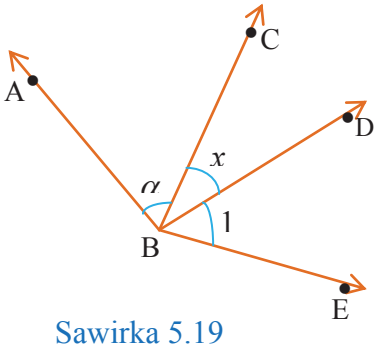
Summadaha xarfaha giriiga	α	β	γ	θ	δ	∈
Sida loo akhriyo	Alfa	beta	gaama	tiita	dhelta	Ibsiloon

Tusaalaha 5aad: Sawirka 5.19, ∠ABC

Waxaa kale oo lagu magacaabi karaa

Sida X, ∠CBD waxaa lagu magacaabi

Karaa X, ∠DBE waxaa lagu maragaabi karaa 1.



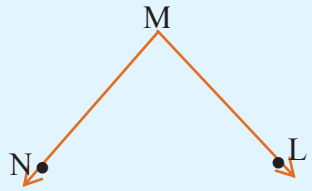
Sawirka 5.19

LAYLISKA 5.4

1 Sawirka 5.20 waa kuwee/kee

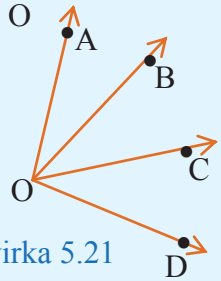
b gacmaha (dhinacyada) ∠NML?

t geeska xagasha ∠NML?



Sawirka 5.20

2 Sawirka 5.21, tax dhammaan xaglaha ka smaysma geeska O adigoo isticmaalaya habka ugu haboon ee loo magacaabo.



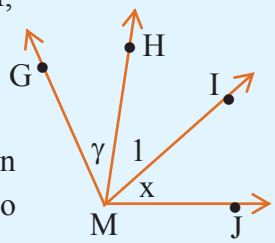
Sawirka 5.21

3 Sawirka 5.22

b qaado xagal kasta oo ka samaysanta geeska M, dabadeed magacow gacmaheeda iyo geeska.

t tax dhamaan xaglaha ka samaysma M

j miyaad xaglaha M ka samaynaysaa u bixin kartaa xagasha kale ee r loo bixin karaa? X loo bixin karaa? loo bixin karaa?



Sawirka 5.22

5.2.2 CABBIRADA IYO NOOCYADA XAGLAHA:

Hawlgalka 5.5

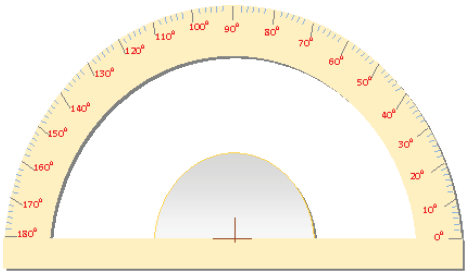
1 Qalabkee ayaad ku cabbiri dhererka xariijinta?

2 Miyuu jiraa qalab aad taqaan oo lagu cabiraa xaglaha? Maxaad u taqaan?

3 Waa maxay halbeega salka u ah xagashu?

Xagal- cabiruhu (borotaraktor) waa qalabka ugu haboon ee lagu cabiro xagasha waa goobo badh leh meelo u qaybsan 180 meelood oo isleeg oo la yidhaahdo darajooyinka goobo qaabilka (digrii). Xudunta goobo badhka waxaa lagu calaamadeeyaa dhibic.

Sida loo cabiro xagal

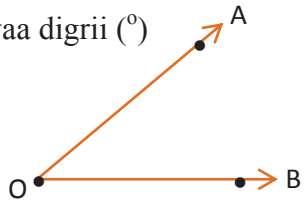


Sawirka 5.23

Dul-dhig xagal cabiraha xagasha dusheeda, taasoo xudunta lagu aadinayo geeska xagasha, halka eberku ku qoran yahayna waxaa lagu aadin dhinac ka mid ah dhinacyada xagasha, meesha kale ee ama barta kale ee dhinaca kale ee xagashu halka uu halbeega kaga beegan yahay waa inta digrii ee xagashu tahay.

Xagal cabiraha (protractor) waxaa kale oo loo isticmaali karaa.

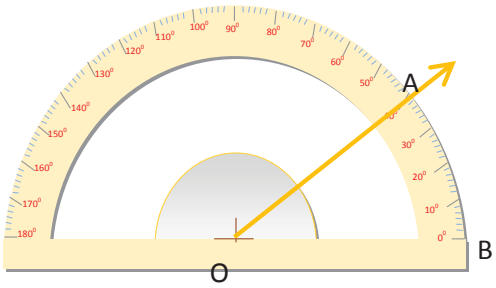
- In xaglaha lagu sawiro
- In xaglaha laysugu bar bar dhigo
- Halbeega caadiga ah ee lagu cabbiro xagluhu waa digrii (^{o})
- Haddii goobada loo qaybiyo 360 qaybood oo isleeg oo mid ka mid ah bar-dhammaadkeeda lagu xidho xudunta ayadoo la isticmaalayo xariiq toosan, dabadeed xagasha ka samaysanta xuduntu waa 1^o.



Sawirka 5.24

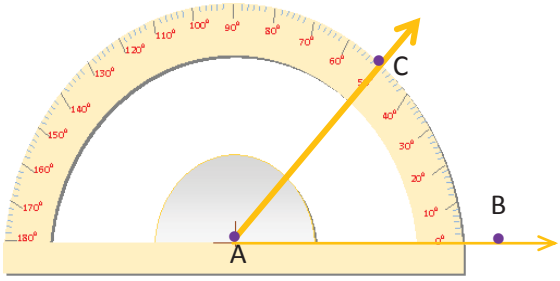
Tusaalaha 6aad: cabbir ∠AOB adigoo isticmaalaya xagal-cabbire.

Furfuris: si loo cabbiro xagal dul-dhig xagal cabbiraha xagasha ee O. dabadeed meesha eberku ku qoran yahay waxaa la dul dhigi dhinaca OB. Barta dhinaca OA kaga beegan yahay xagal cabbiraha ayaa ah cabbirka xagasha,.



Sawirka 5.25

Tusaalaha 7^{aad}: Sawirka xagasha 50^{o}, adigoo isticmaalaya xagal cabbir.



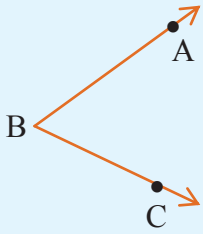
Sawirka 5.26

Furfuris: Marka u horaysa sawir fallaadha AB, dabadeed xudunta xagal-cabiraha waxaad dul-dhigtaa barta A, salkana ku beeg dhinaca AB. Dabadeedna akhri halka ay ku beegan tahay 50^{o}, kuna magacow C, dabadeedna isku xidh AC, $\angle$CAB waa xagasha cabbirkeedu yahay 50^{o}.

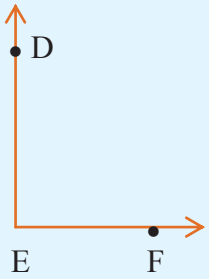
LIYLISKA 5.5

1 Adigoo isticmaalaya xagal cabbire cabbir xagal kasta oo soo socota

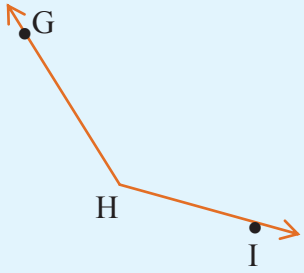
b



t



j



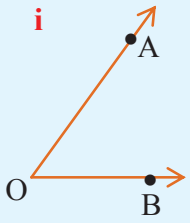
x

2 Sawir xagal kasta oo ka mid ah xaglahan soo socda, adiga oo isticmaalaya xagal cabbire.

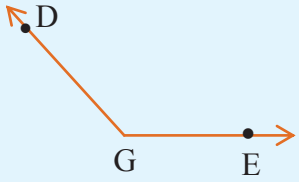
b 180^{o} **t** 30^{o} **j** 60^{o} **x** 90^{o} **kh** 120^{o} **d** 45^{o}

3 Cabbir xagal kasta oo ka mid ah kuwan soo socda, adigoo isticmaalaya xagal cabbire, isbarbar dhigna.

i



ii



Sawirka 5.28

b xagashee ayaa wayn? ∠AOB ama ∠DGE?

t waa faraqa u dhexeeya xagasha wayn iyo xagasha yar.

Noocyada xaglaha (kala saarida xaglaha)

Qaybta waxaan ku baran doonaa siyaabaha kala duwan ee loo kala saaro xaglaha.

Hawlgalka 5.6

1 **b** aan qaadano sawirka 5.29, (b) ee saacada haddii gacanta saacada iyo gaacanta miridhku labaduba ay sheegayaan 12, waa immisa xagasha u dhaxaysa labada gacmood.

t sawirka 5.29 (t) haddii gacanta tirisa miridhku wareegto ayadoo ku tagaysa 12, takalana 3 halka gacanta saacadu ay joogto 12, waa imisa xagasha u dhaxaysa labada gacmood?.

j sawirka 5.29 (j) haddii gacanta miridhka tirisaa ay sheegayso 6 ta saacada sheegtaana wali joogto 12, waa imisa xagasha u dhaxaysa labada gacmood?

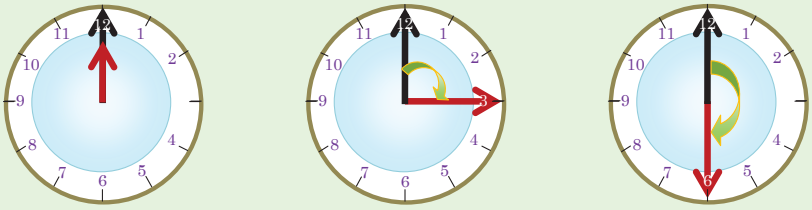
x waa imisa haddii miridh tirisadu wareegto wareeg buuxa, waa imisa xagasha u dhaxaysa labada gacmood?

2 Imisa ayuu noqon cabbirka xagashu, haddii gacanta miridh tirisadu.

b Wareegto inta u dhaxaysa

i 12 iyo 3? **ii** 12 iyo 6?

t inta ayna samayn wareeg buuxa ay ka bilaabanto 12?



b **t** **j**

Sawirka 5.29

- Haddii laba fallaadhood oo bar-dhammaad wadaagaa ay isku dul-dhacaan, dabadeed xagasha ka samaysanta dhexdooda waxaa la yidhaa xagal eber ah. Cabbirka xagasha eberka ahi waa 0^{o}.

- Xagasha ka samaysanta laba fallaadhood oo isku qotoma dhexdooda waxaa la yidhaa xagal quman cabbirka xagasha qumani waa 90^o.
- Xagasha ka samaysanta laba fallaadhood oo wadaaga bar dhammaad una kala jeeda labada dhinac ee iska soo horjeeda dhexdooda waxaa la yidhaahdaa xagal toosan. Xagasha toosan xabbirkeedu waa 180^o.
- Xagal dhammaystirani waa xagasha marka fallaadha la wareejiyo, wareeg dhamaystiran, cabbirka xagasha dhamaystirani waa 360^o.

Xagadsha kale ee u dhexeeya 0^o iyo 360^o waxaa loo kala soocaa sidan soo socota.

Cabbirka xagasha	Magaca xagasha	
$0° < \theta < 90°$	Xagal fiiqan	
$90° < \theta < 180°$	Xagal daacsan	
$180° < \theta < 360°$	Xagal-dhacsan	

Ogow: maadaama oo uu xagal-cabbiraha uu leeyahay halbeegyo (tirooyin) u dhexeeya 0^o ilaa 180^o sawirida iyo cabbirada xaglaha ka wayn 180^o, way adagtahay in lagu cabbiro xagal-cabbire.

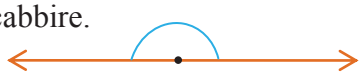
Xaaladan waxaan u sawiraynaa ama cabiraynaa xaglaha ka wayn 180^0 labadan tallaabo ee soo socda.

Tallaabada 1^{aad}: waxaan sawiraynaa ama cabiraynaa xagal ah 180^0 inagoo isticmaalayna xagal-cabire

Tallaabada 2^{aad}: sawir ama cabbir xaglaha hadhay adigoo ka bilaabaya bar dhamaadka hadhay, adigoo ka bilaabaya bar-dhamaadka fallaadhaha 180^o, dabadeed isu-gee xaglaha talaabada 1 iyo 2 tani ayaa ah xagasha ka wayn 180^o.

Tusaalaha 6^{aad}: sawir 210^o adigoo isticmaalaya xagal-cabbire.

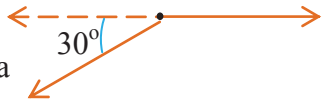
Furfuris:



Sawirka 5.30

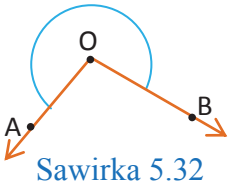
Tallaabada Kowaad: sawir xagal cabbireedu yahay 180^o.

Tallaabada Labaad: dhinaca dhammaadka 180^o adoo ka bilaabaya sawir xagal la mid ah $210^o - 180^o = 30^o$, dabadeed 210^o waa xagasha ka samaysanta bar bilawga fallaadha 180^o iyo bar-dhamaadka fallaadha 30^o.



Sawirka 5.31

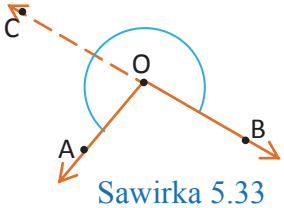
Tusaalaha 7aad: cabbir xagasha sawirka 5.32?



Sawirka 5.32

Furfures:

Tusaalaha 1aad: cabbir xagasha 180^o ee ka timaada OB. Ka soo qaad in OC ay tahay fallaadh dhammaadka 180^o.



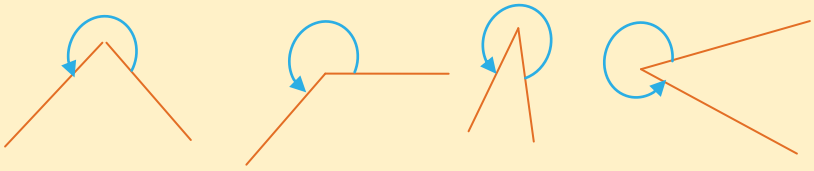
Sawirka 5.33

Tusaalaha 2aad: cabbir xagasha hadhay ee ka bilaabanta dhammaadka dhinaca OC ee 180^o ilaa OA, dabadeed cabbir xagal noqodka BOA = 200^o.

SHAQO KOOXEEDKA 5.3

1 Cabbir mid kasta oo ka mid ah xagalahan soo socda adigoo adeegsanaya xagal-cabbir.

b **j** **t** **x**


Sawirka 5.34

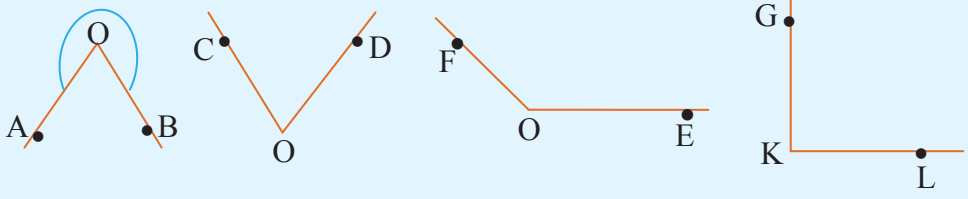
2 Sawir mid kasta oo ka mid ah xaglahan adigoo isticmaalaya xagal-cabire.

b 189^o **t** 210^o **j** 330^o **x** 350^o

LAYLISKA 5.6

1 Adigoo cabiraya midkasta oo ka mid ah xaglahan soo socda, kala saar.

b **t** **j** **x**



Sawirka 5.35

2 Adigoo dhigaya callaamad (/) buuxi shaxdan.

xagal	Xagal fiiqan	Xagal daacsan	Xagal dhacsan
110^o			
63^o			
142^o			
233^o			
189^o			
129^o			
78^o			
179^o			
200^o			

3 U Kala saar mid kasta oo ka mid ah xaglahan soo socda, xagal fiiqan, daacsan iyo noqod (mid ka wayn 180^o).

b 12^o **t** 79^o **j** 184^o **x** 1^o

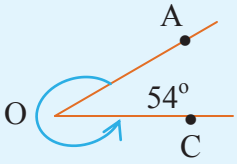
kh 225^o **d** 359^o

4 haddii $\angle BDC$na ay tahay xagal quman, xagal noocee ah ayay noqon wadarta $\angle AOC$ iyo $\angle BDC$?

5 **b** waa Imisa cabbirka xagasha ka samaysanta gacanta miridh tirista, hal saac gudaheed?

t waa imisa cabbirka xagasha ka samaysanta gacanta miridh tirista 30 miridh?

6 Raadi cabirka xagal noqodka (xagasha ka wayn 180^o) ee $\angle AOC$.



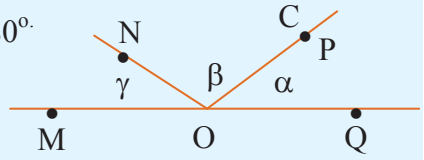
Sawirka 5.36

7 Sawrika 5.37 haddii X = 40^o, B = 60^o iyo = 80^o.

b waa nooca xagasha $\angle POQ$?

t waa nooca xagasha $\angle NOQ$?

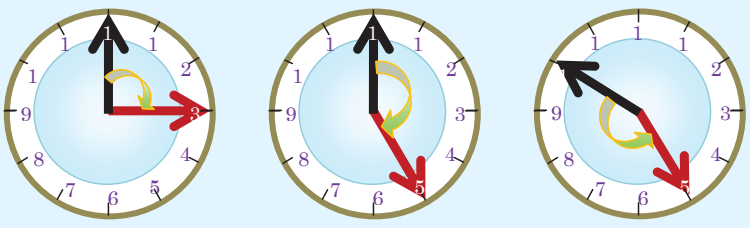
j waa nooca xagasha $\angle$ QOM?



Shawika 5.37

8 Cabbir xagalaha u dhexeeya gacmaha saacada mar kasta.

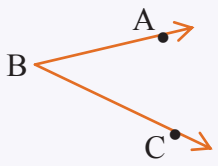
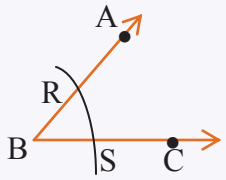
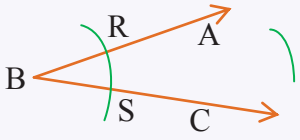
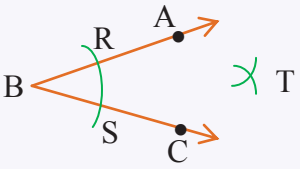
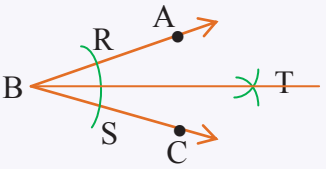
b **t** **j**



Sawirka 5.38

5.2.3 U QAYBINTA XAGLAHA LABA MEELOOD OO ISLE'EG

Halkan tusmo hoosaadkan waxad ku baran doontaa sida xaglaha loogu qaybiyo laba meelood oo isleeg, adigoo isticmaalaya kombas iyo mastarad, tallaabooyinkan. Waxaa lagu soo koobay shaxdan.

Tallaabada 1aad: sawir xagal cabbirkeedu intuu doono yahay.	
Tallaabada 2aad: dul-dhig kombaska geeska B iyo inta aad doonto gacan leeg sawir goobo gobol, si ay u kulmaan BA iyo BC labada barood ee R iyo S.	
Tallaabada 3aad: dul dhig kombaska barta R furna gacanka qiyaas caadi ah sawir goobo goobo ku dhex jirta gacmaha xagasha.	
Tallaabada 4aad: gacan isku mid ah sawir goobo xudunteeduna tahay S, si ay ugu kulmaan kii hore barta T.	
Tallaabada 5aad: isku xidh geeska iyo barta T adigoo isticmaalaya fallaadh, haddaba BT waa xagal-badhaha xagasha ∠ABC.	

Ogow: BT taas oo u qaybisa ∠ABC laba xaglood oo isleeg ∠ABT iyo ∠TBC ayaa ladhahaa xagal badhaha xagasha ∠ABC.

SHAQO KOOXEEDKA 5.4

Sawir xagal cabbirkeedu yahay 150^{o}, dabadeed laba xaglood oo isleeg u qaybi adigoo isticmaalaya kombas iyo mastarad.

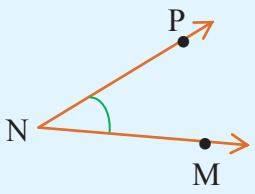
LAYLISKA 5.6

1 Sawir xaglahan soo socda, laba isleegna u qaybi adigoo isticmaalaya kombaska iyo mastarad

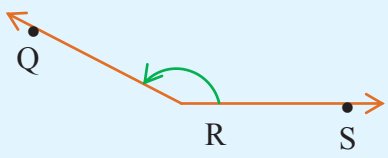
b 30^o **t** 90^o **j** 110^o

2 Laba isleeg u qaybi xaglahan adigoo isticmaalaya kombas iyo mastarad, adigoo ku guurinaya buugaaga qorista.

i



ii



Sawirka 5.39

3 Dhis 90^o adigoo isticmaalaya kombas iyo mastarad, dabadeedna laba isleeg u qaybi.

5.3 NOOCYADA SADDEXAGALADA

Hawlgalka 5.7

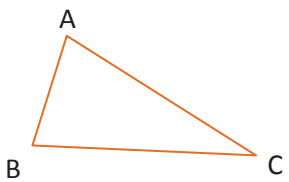
1 Sawir saddexagal soona goo warqada aad ku sawirtay.

2 Imisa dhinac ayuu leeyahay saddexagalka aad sawirtay? Imisa gees ayuu leeyahay? Imisa xaglood ayaa ka samayni kara geesaha saddex xagalka?

3 Side ayaad u magacaabi saddexagalkaaga?

4 Saddex xagalada ma waxaad ku kala saari kartaa dhererka dhinacyadooda? Mise waxaad ku kala saari kartaa cabbirka xaglahooda?

Saddex xagal waa geesole leh saddex dhinac wuxuu leeyahay 3 xaglood iyo bed xidhan. Saddex xagalka waxaa loo bixiyaa xarfaha geesahiisa ku qoran. Tusaale ahaan haddii A, B iyo C, ay yihiin geesaha saddex xagal lagu siiyay, dabadeed waxaan u bixinaynaa ABC. Waxaan loo akhriyaa saddex xagalka ABC.



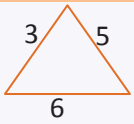
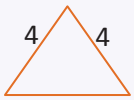
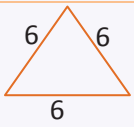
Sawirka 5.40

SHAQO KOOXEEDKA 5.5

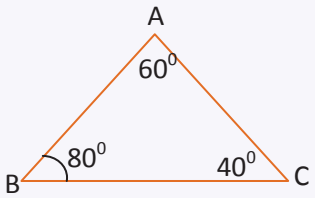
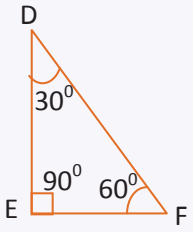
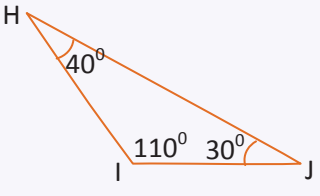
Haddii P, Q iyo R ay yihiin geesaha saddex xagal lagu siiyay, u magacow saddex xagalka siyaabo kala duwan, adigoo isticmaalaya xarfaha P, Q iyo R.

Saddex xagalada waxaa lagu kala soocaa marka loo eego dhererka dhinac yadooda ama cabirka xaglahooda.

i Marka aan kala soocayno saddex xagalada inagoo eegayna dhinacyadooda.

Magaca saddex xagalka	dhinacyada	Tusaale
Saddexagal aan isleekayn	Ma jiraan laba dhinac oo isku mid ahi.	
Saddexagal labaale ah	Ugu yaraan laba dhinac ayaa isku mid ah, labada dhinac waxaa la yidhaa lugaha, dhinaca saddex xagalada waxaa la yidhaa salka.	
Saddexagal siman	Dhammaan dhinacyadiisu waa isku mid	

ii Marka aan kala soocayno saddex xagalada inagoo eegayna cabbirka xaglahooda.

Magaca saddex xagalka	xaglaha	Tusaale
Saddexagal xagal fiiqan leh.	Dhammaan saddexdiisa xagalood waa xaglo fiiqan	
Saddexagal xagal quman leh	Xaglihiisa mid ka mid ah ayaa xagal quman ah.	
Saddexagal xagal daacsan	Xagal ka mid ah saddex diisa xaglood ayaa daacsan.	

SHAQO KOOXEEDKA 5.6

1 Ku sawir ama dhis saddex xagalo kala duwan adigoo adeegsanaya warqad, dabadeed soo goo oo cabbir xagal kasta, dabadeed isu gee cabbirka saddexda xaglood. Imisa ayay noqon wadarta saddexda xaglood? Tani ma sax bay ku tahay saddex xagal kasta oo aad sawirtay ama dhistay?

2 Sawir (dhis) saddex xagal xaglihiisu leegyihiin dhammaantood? Ma isku midbaa? Waa imisa cabbirka xagal kastaa?

3 Saddex xagalka simani ma labaalaa? Labaalayaashu ma saddex xagal simanbaa?

4 Saddex xagalku miyuu yeelan karaa in ka badan hal- xagal oo quman? In ka badan hal xagal oo fiiqan? waayo?

5 Saddex xagal miyuu noqon karaa saddex xagal aan isleekayn iyo mid leh xagal fiiqan labadaba? Mid aan isleekayn iyo mid leh xagal quman? Mid aan isleekayn iyo mid leh xagal daacsan?

6 Saddex xagal labaale ahi miyuu noqon karaa saddex xagal leh xagal quman?

7 Saddex xagal siman miyuu noqon karaa saddex xagal leh xagal quman? Saddex xagal leh xagal daacsan? Saddex xagal leh xagal fiiqan?.

8 Haddii laba xaglood oo saddex xaglood yihiin 30^o iyo 50^o, saddex xagalku waa noocee?

Astaamaha Saddexagalka

Wadarta cabbirka xaglaha saddexagal waa 180^o.

LAYLISKA 5.7

1 Waxaa lagu siiyay xagal hoose dhererka dhinacyada saddexagalada. Adigoo qiimayashan ku salaysanaya magacow saddexagal sida:

Mid aan isle'ekayn, mid labaadle ah iyo saddexagale siman.

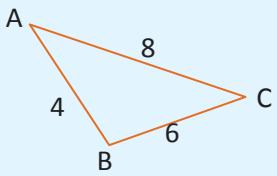
b	3, 5, 7	**t**	4, 4, 6	**j**	2.5, 3, 4.2
x	5, 5, 5	**kh**	6, 7, 8	**d**	10, 20, 15.

2 Xagga hoose waxaa lagugu siiyay cabbirka xaglaha saddexagalada. Adigoo ku salaynaya cabbiradan. Magacow saddexagalada sida: saddexagal leh xagal fiiqan, leh xagal quman mid leh xagal daacsan.

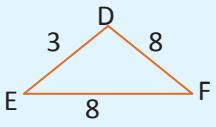
b	20^o ,10^o, 150^o	**t**	40^o, 60^o, 80^o	**j**	26^o, 72^o, 82^o
x	50^o , 50^o, 90^o	**kh**	5^o, 35^o, 140^o		

3 Sawirada saddex xagalada iyo dhinacyadooda hoos lagugu siiyay kala saar noocyadooda.

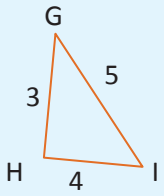
b



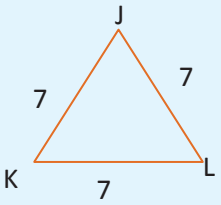
j



t



x

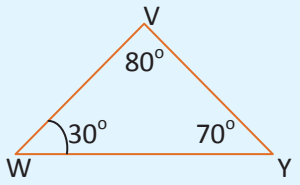


Sawirka 5.41

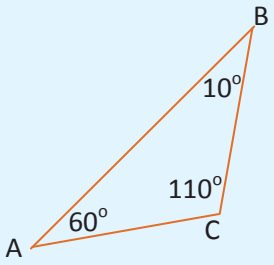
4 Haddii laba xaglood oo saddex xagal yihiin 90^o iyo 30^o waa imisa xagasha 3^{aad}?

5 Sawirada saddex xagalada iyo cabbirka xaglahooda ee hoos lagugu siiyay adigoo isticmaalaya kala saar noocyada saddex xagalada.

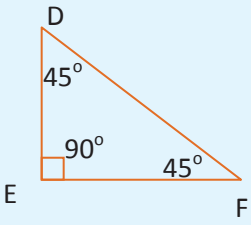
b



t



j



6 Haddii hal xagal ah ee saddex xagal tahay 80^o. Raadi wadarta labada xaglood ee kale?

7 Cabbirada xaglahani miyay u taagnaan karaan xaglo saddexagal?

b $50^o, 89^o, 122^o$ **t** $45^o, 45^o, 45^o$ **j** $25^o, 25^o, 25^o$

x $100^o, 40^o, 40^o$ **kh** $110^o, 30^o, 40^o$

5.4 XARIIQYADA WANQARKA (XARIIQYADA LABA MEELOOD OO ISLEEG U QAYBIYA WAX AMA SAWIRADA)

Waxyaalaha inagu wareegsan waxaa ka buuxa waxyaalo badan oo wanqaran (laba isleeg u qaybsan).

Tusaale ahaan u baxyadu waxay leeyihiin ubaxyo laba meelood oo isleeg u qaybsan. Dhagaha geeduhu waxay u habaysan yihiin si wanqaran, laba meelood oo isleeg ah. Sawiro joomatari oo kala duwani waxay leeyihiin xariiqyo laba meelood oo isleeg u qaybiya. Adduunka waxaa ka buuxa waxyaalo badan oo wanqaran.

Waa kuwee kuwa laysla yaqaan ee wanqaradu (walxaha labada meelood ee isleeg u qaybiyaa).

Hawlgalka 5.8

1 Aan qaadano caleenta (dhagta dhirta). Isku lab adigoo isaga laabaya xariiqda badhtanka, maxaa ku dhici qaybta dhagta marka aad isku laabto dhagta? Miyay qaybta kale dul buuxinaysaa qaybta la ilaaliyay?

Sawirka 5.43

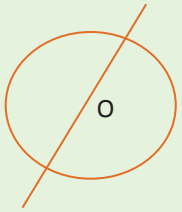
2 Aan tixgalino

Laydiga □ABCD, isku laab xariiqda isku xidha bar-badhtanka AD iyo BC, maxaa ku dhici qaybta sare iyo qaybta hoose ee laydiga?

Sawirka 5.44

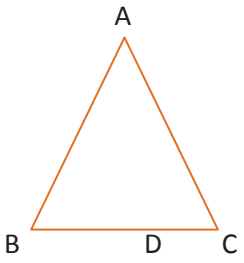
Miyay dhammaan is dul buuxinayaan marka laysku laabo? D halkee ayay ku dul dhici? C halkee ay ku dul dhici?

3 Aan tixgalino goobo xudunteedu tahay O. isku laab mid ka mid ah dhexrooradiisa maxaa ku dhici qayb ka mid ah goobada? Miyay dul-buuxin labada dhinac? Halkee ayay dhici xudunta goobadu marka laysku laabo?



Sawirka 5.45

Qaado saddex xagalka labaalaha ah ee ABC halka AB = AC, dabadeed isku lab, waxaanad isaga laabtaa xariiqda AD ee labada isleeg u qaybisa saddex xagalka, kuna qotonta BC, maxaa ku dhici saddex xagalka?



Sawirka 5.46

Labada dhinac saddex xagalku miyuu isku dhul dhici? Halkee ayay B dhici ayaad u malayn? AB miyay ku dul-dhici doontaa A C dhamaanteed? Miyuu jiraa xariiq kale oo aan ahayn A D kaasoo saddex xagalku dhammaan iska dul dhacayo?

Hawlgalka xaga sare ku xusani wuxuu si cad kaaga caawin doonaa in aad fahanto, waxa xariiqda laba meelood oo isleeg u qaybisaa (wanqarku) yahay iyo wanqarada sawirada joomaratiga.

Tusaale ahaan: haddii aad isku laabto dhagta caleenta ee su'aasha (1) aadna isaga laabto xariiqda marta badhtamaha, waxaad dhammaan labada dhinac ee dhagta caleentu way isku dullaabmayaan. Sidaas darteed xariiqda badhtanka martaa waa xariiqda wanqarka ee dhagta caleenta. Dhagta caleentuna waxay ku wanqaran yihiin xariiqda marta badhtanka.

Sidaas si la mid ah, haddii aad isku laabto saddex xagal labaale ah su'aasha (4) waxay ku saabsan tahay AD, qaybta saddex xagalku waxay dhammaan ku dul dhacaan dhinaca kale haddaba saddex xagalku wuxuu ku wanqaran yahay $\overline{AD}$. $\overline{AD}$ waxaa loo yaqaanaa dhidibada wanqarka ee saddex xagalka.

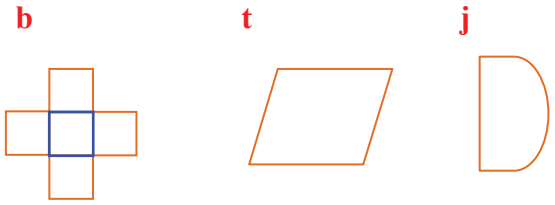
GUUD AHAAN:

Sawir joomatari waxaa la odhan karaa wuxuu ku wanqaran yahay xariiqda lagu siiyay ee ℓ haddii sawirka qaybi, qaybta kale dul buuxiso marka laysku laabo, iyadoo laysaga laabayo xariiqda ℓ dabadeed xariiqda ℓ waxaa la dhahaa xariiqda wanqarka ama dhidibka wanqarka.

Tsaalaha 1aad: imisa xariiqood oo laba meelood oo isleeg u qaybiya ayay leedahay E?

Furfures: waxay leedahay hal xariiq oo laba meelood oo isleeg u qaybiya

Tusaalaha 2aad: midkee ayaa sawiradan soo socda aan lahayn wanqar (xariiq laba meelood oo isleeg u qaybisa)?



Sawirka 5.47

Furfuris:

t malaha dhidib laba meelood oo isleeg u qaybiya (wanqar).

LAYLISKA 5.8

1 Ku sawir saddex xagalo siman oo kala duwan waraaq dusheed dabadeedna, goo barta wanqaradooda. Imisa dhidib wanqar ayay saddex xaglada simani leeyihiin? Tus wanqar kasta oo saddex xagal siman oo kastana leeyahay?

2 Ku sawir laba jibbaarane warqad dusheeda dabadeedna goo, barana wanqaradiisa. Imisa dhidibo wanqar ayuu leeyahay laba jibbaarane kastaa?

3 Ku sawir laydi warqad, goo tusna dhammaan dhidibadiisa wanqarka, imisa dhidibo wanqar ayuu yeelan doonaa laydigu?

4 Sawir goobo, tusna dhidibadeeda wanqarka. Imisa dhidibo wanqar ayay yeelan kartaa goobadu? laba? saddex? Inbadan?

5 Adigoo isticmaalaya aqoonta aad u leedahay wanqarada, xarfaha waawayn ee luuqada ingiriisiga keebaa leh:

b dhidib wanqar jiifa?

t dhidib wanqar taagan?

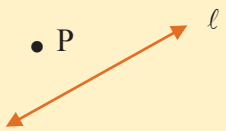
j dhidib wanqar jiifa iyo ku taagan labadaba?

Astaamaha dhidibada wanqarka

Waxaad taqaanaa isbadalka ku dhaca muuqaalka walax marka humaageeda ay samayso noqodka muraayada sallax. Aan fiirino xidhiidhka ka dhex dhaca humaaga walax ay samaysay muraayada sallax iyo walax ku wanqaran walax kale.

SHAQO KOOXEEDKA 5.7

1 Waraaq dusheed ku sawir taad doonto dhig xarafka P ka soo horjeedka xariiqda meel u jirta fogaanta ay doonto, dheh 3sm.



Sawirka 5.48

2 Dhig muraayad sallax xariiqda L ee ku qotonta sallaxa ay xariiqdu ku taalo, qiime (fiiri) humaaga walaxda ay samaysay muraayadu.

3 Isbarbar shig humaaga walaxda ee muraayadu samaysay iyo walaxda labada meelood ee isleeg u qaybisay xariiqda (wanqarka) miyuu humaaga muraayadu samaysay la mid yahay walaxda xariiqdu labada meelood ee isleeg u qaybisay?

4 Maxaad ku gabagabayn lahayd? Hawlgalka aan xaga sare ku soo samaynay waxaa lagu gabagabayn karaa sidan soo socota.

Humaaga walaxeed ee ay samayso muraayad sallax oo dul dhigay xariiqda ku qotonta sallax xariiqdu dul martaa wuxuu la mid yahay wanqarka ay qaybiso xariiqdan (laba meelood oo isleeg).

Hawlgalka 5.9

1 Qaado laydi quman oo laga soo gooyay warqad, dabadeed isu lab, adigoo isaga laabaya dhererkiisa,

b qaado laba barood oo kasta oo ku dul dhaca laabiga dushiisa, siina magacda A, B iyo C.

t ku mud caarada hore ee kombaskaaga saddex (barood)meelood oo kala duwan oo warqada dusheeda ah. Ka soo qaad in barahani ay kaga beegan yihiin dhinac kale ee laydiga, A' iyo B', iyo C',

j laydi aan isku laabmayn, ku sawir xariiq marta xariiq ku began meesha laga laabo laydiga.

x ku xidh A iyo A', B iyo B' iyo C iyo C' , adigoo isticmaalaya mastarad.

kh ka soo qaad AA', bb' iyo CC' inay ka jaraan xariiqda E, F, G, siday isugu xigaan.

2 Cabbir

b AE iyo EA'

t BF iyo FB'

j CG iyo CG', barbardhig lamaane kasta. maxaad ogaatay?

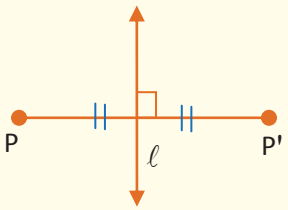
3 Adigoo isticmaalaya xagal-cabbire, xagal kasta oo ka samaysanta lammaanayaasha dhexdooda.

b □ iyo AA' **t** □ iyo BB' **j** □ iyo CC'

4 Su'aalaha 2 iyo 3 waa maxay gabagabada muhiimka ah ee ku saabsan dhidibada wanqarka ah ee aad ku gabagabaynaysa?

Hawlgalka xaga sare ku xusan, waxaan ku gabagabaynaynaa sidan soo socota.

- ✓ Haddii P iyo P' ay yihiin laba barood oo wanqar oo uu leeyahay xariiq ℓ, dabadeed.
- ✓ ℓ waxay ku qotontaa PP'.
- ✓ ℓ waxay laba isleeg u qaybisaa PP'



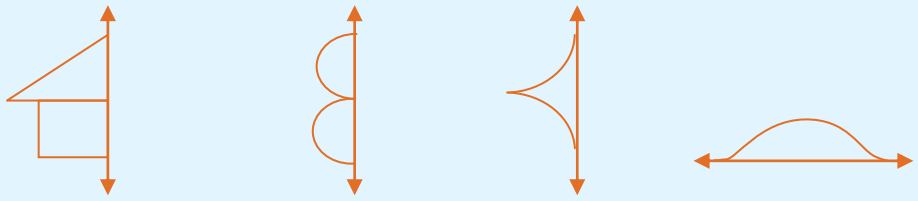
Sawirka 5.49

Si kooban dhisibada wanqarku waa kala qaybiye ku qotoma xariijinta isku xidha barta iyo humaageeda.

LAYLISKA 5.9

1 Kuwan soo socda mid kasta oo ka mid ah, waxaad ka soo qaadaa in sawiradu (shaxanadu) ay ku wanqaranyihiin xariiqda, dhamaystir humaagyada.

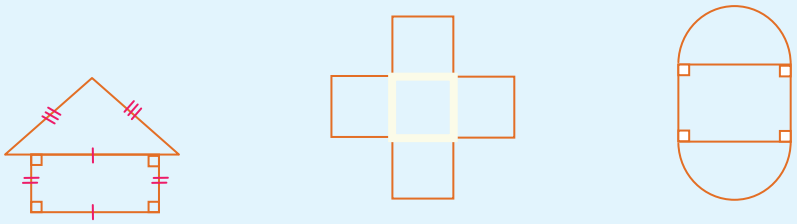
b **t** **j** **x**



Sawirka 5.50

2 Imisa dhidib wanqar ayay mid kasta oo ka mid ah shaxanadan soo socdaa yeelan karaan.

b **t** **j**



Sawirka 5.51

3 Labada barood ee R iyo S waxay ku wanqaran yihiin xariiqda L, hadii RS ay yihiin 30sm, L intee in leeg ay ka fogtahay dhinac dhammaadka xariijinta isku xidha R iyo S.

4 Haddii L ay tahay dhidibka wanqarka labada barood ee M iyo N taasoo fogaanta M iyo L ay isku jiraan ay tahay 13sm, intee ayay N u jirtaa L ?

5 Isku aadi mid kasta oo ka mid ah shaxanada soo socda iyo tirada dhidib wanqar ee ay leeyihiin.

	Shaxan	Tirada dhidib wanqar	
i	Laba jibbaarane	**b**	3
ii	Laydi aan ahayn laba jibbaarane	**t**	5
iii	Saddex xagal siman	**j**	in badan
iv	Saddex xagal labaale ah oo aan ahayn	**x**	4
	Saddex xagal siman	**kh**	2
v	Goobo,	**d**	1

Dhisida dhidibka labada meelood ee isleeg u qaybiya laba barood (wanqarka)

Marka laba barood lagu siiyo, sida ayaan u dhisi karnaa dhidibka labada meelood ee isleeg u qaybiya adigoo isticmaalaya kombas iyo mastarad? Jawaabta waxaa lagala soo bixi karaa astaamaha dhidibada wanqarka, maadaama oo dhidibka wanqarka laba barood uu yahay dhidibka xariiqda labada barood, isku xidha ku qotoma ee labada isleeg u qaybiya.

Dabadeed waan dhisi karnaa dhidibka wanqarka, inagoo dhisayna xariiqda ku qotonta ee labada meelood ee isleeg u qaybi 20sm. a xariiqda isku xidha labada barood. Laakiin waan soo baranay sida loo sameeyo xariiq ku qotonta xariijin lagu siiyay adigoo isticmaalaya kombas iyo mastarad qaybtii 5.1.2. sidaasi darteed waxaan u sawirayaa dhidibada wanqarka ee laba barood sidii hore si la mid ah.

LAYLISKA 5.10

1 Dhis ama samee dhidibka wanqarka ee labada barood ee A iyo B haddii AB = 12 sm, adigoo isticmaalaya kombas iyo mastarad.

2 Dhis (samee) dhidibka wanqarka ee labada barood C iyo D haddii CD = 20 sm. Adigoo isticmaalaya kombaska iyo mastarad.

3 Dhis (samee) dhidibka wanqarka ee laydiga ABCD haddii AB = 10 sm iyo BC = 8 sm, adigoo isticmaalaya kombas iyo mastarad.

4 Dhis (samee) dhidibka wanqarka ee saddex xagalka labaalaha ah ee ABC, haddii AB = 3 sm, BC = 4 sm iyo AC = 3 sm, adigoo isticmaalaya kombas iyo mastarad.

5.5 CABBIRAAD

5.5.1 WAREEGYADA IYO BADADKA LABA JIBBRANAYAASHA IYO LAYDIYADA

1 Laydigu waa shaxan noocee ah? Sawir laydi, dabadeedna tus saaxiibadaada fasalka. Waa maxay wadarta dhererka dhinacyadiisa? Badkiisu waa maxay?

2 Laba jibbaaranuhu waa shaxan noocee ah? Sawir laba jibbaarane, dabadeedna tus saaxiibadaada fasalka? Waa maxay wareega laba jibbaaranuhu? Waa maxay badka laba jibbaaranuhu?

3 Dhammaan laba jibbaaranayaashu ma laydiyaa? Laydiyadu dhammaan ma laba jibbaaranayaal baa?

4 Sideed u raadin wareega laba jibbaarane? Ka laydi? Waa maxay halbeega wareegu?

Intaynaan qaaciidada wareega iyo badka laba jibaarane iyo laydi baranin, marka hore aan qeexno laba jibbaarane.

Hawlgalka 5.10

✓ Laydi waa geesoole leh afar dhinac oo labada iska soo horjeeda, isleegyihiin, oo dhammaan xaglihiisuna xaglo quman yihiin.

✓ Laba jibbaaranuhu waa geesoole afar tiisa dhinac isleeg yihiin

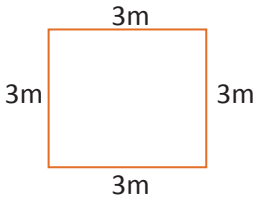
B Wareegyada laba jibbaaranayaasha iyo laydiyada

Ogow: wareega geesoole waa wadarta fogaanta ku wareegsan geesoolaha.

Tusaalaha 1aad: nin beeralay ah ayaa wuxuu leeyahay beer leh qaab laba jibbaarane oo dhererka dhinacyadeedu yihiin 3mitir. haddii uu doono in uu dayro dhulka, wareega dayrku waa imisa?

Furfuris: maadaama oo dhulku yahay laba jibbaarane, dabadeed dhererka dayrku = wadarta dhererka dhinacyada laba jibbaaranaha = 3mitir + 3mitir + 3mitir + 3mitir = 4 (3mitir) = 12mitir.

Haddaba wareega dayrku waa 12mitir

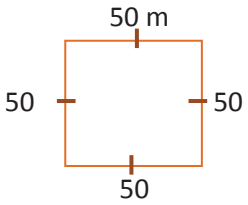


Sawirka 5.52

Tusaalaha 2aad: haddii Caasha ku wareegto orad geesaha beer laba jibbaarana ah oo dhinacyadeedu yihiin 50mitir hal mar, dabadeed intee in leeg ayay oraday?

Furfuris: wadarta fogaanta Caasha oraday = wadarta dhererka dhinacyada beerta laba jibbaaranaha ah = 50mitir + 50mitir + 50mitir + 50mitir = 200mitir.

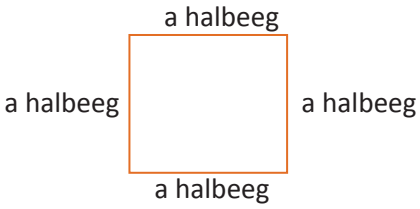
sidoo kale Caasha waxayOraday 200 mitir.



Sawirka 5.53

Tusaalaha 3aad: raadi wareega laba jibbaarane dhinacyadiisu yihiin a halbeeg.

Furfuris: wareega laba jibbaarane = a halbeeg + a halbeeg + a halbeeg + a halbeeg = 4a halbeeg.



Sawirka 5.54

Tusaalaha 4aad: dhinacyada sabuurada leh qaab laydi waa 60 sm iyo 50 sm. Raadi wareega laydiga (sabbuurada).

Sawirka 5.55

Furfuris:

wareega sabuurada = 60 sm + 50s m + 60 sm + 50 sm

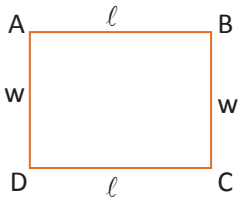
= 2 × 60 sm + 2 × 50 sm

= 2 (60 sm +50 sm)

= 2 (110 sm) = 220 sm.

Haddaba wareega sabuuradu waa 220 sm.

Tusaalaha 5aad: Raadi wareega laydiga haddii dhinacyadiidu ay yihiin ℓ halbeeg iyo w halbeeg.



Sawirka 5.56

Furfuris: wareega laydigu = ℓhalbeeg + w halbeeg + ℓ halbeeg + w halbeeg

= [(ℓ + ℓ) + (w + w)] halbeeg

= (2ℓ + 2w) halbeeg

= 2 (ℓ + w) halbeeg.

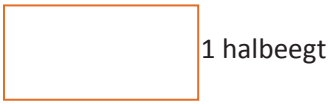
Haddaba,

Wareega laydi dhinacyadiisu yihiin ℓ iyo w waa 2(L+w) halbeeg ama 2(ℓ +w).

T Bedka laba jibbaaranayaasha iyo laydiyada

Badka sallax ama gobol sallax ahi waa inta ku dhex xidhan gobolkaas sallax ah. Waxaan ku qiyaasi karnaa badka gobolka inagoo u qaybinayna laba jibbaaranayaal yar-yar halka halbeeg ah. Tirada laba jibbaaranayaasha yar-yar ee halka halbeeg ahi waa badka gobolka ku xidhan.

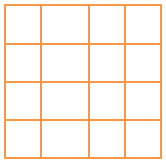
Ogow: laba jibbaarane hal beeg waa laba jibbaarane dhinacyadiisu yihiin 1 halbeeg



Sawirka 5.57

Tusaalaha 6aad: imisa laba jibbaarane oo badkiisu yahay 1 halbeeg ayaad u qaybin kartaa laba jibbaarane dhinacyadiisu yahay 4halbeeg.

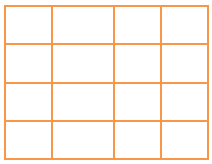
Furfuris: laba jibbaaranaha waxaa loo qaybin karaa (4 × 4) hal beeg laba jibbaaran



Sawirka 5.58

Tusaalaha 7^{aad}: imisa santi mitir laba jibbaarane ayaa loo qaybin karaa laba jibbaarane dhinacyadiisu yihiin 5 sm?

Furufuris: laba jibbaaranaha waxaa loo qaybin karaa (5 × 5) santimitir laba jibbaaran = 25santi mitir laba jibbaaran.

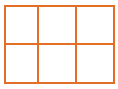


Sawirka 5.59

Tusaalaha 8^{aad}: imisa halbeeg laba jibbaaran ayaa loo qaybin karaa laba jibbaarane dhinacyadiisu yahay S?

Furfuris: laba jibbaaranaha waxaa loo qaybin karaa (S × S) halbeeg laba jibbaaran = S^2 hal beeg laba jibaaran.

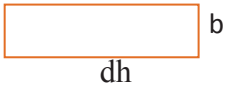
Tusaalaha 9^{aad}: imisa santimitir laba jibbaaran ayaad u qaybin kartaa laydi dhinacyadiidu yihiin 3 sm iyo 2 sm?



Sawirka 5.53

Furfuris: laydiga waxaa loo qaybin karaa (3 × 2) santimitir laba jibbaaran = 6santi mitir laba jibbaaran.

Tusaalaha 10^{aad}: imisa halbeeg laba jibbaaran ayaad u qaybin kartaa laydi dhinacyadiidu yihiin dh halbeeg iyo b halbeeg?



Sawirka 5.60

Furfuris: laydiga waxaa loo qaybin karaa (dh × b) hal beeg laba jibbaaran.

Haddaba,

Bedka laydi dhinacyadiisu yihiin dh iyo b halbeeg waa (dhxb) halbeeg laba jibbaaran.

LAYLISKA 5.11

1 Raadi wareega laba jibbaarane dhinacyadiisu yihiin

b 3 m **t** 10 dm **j** 14 sm **x** 1mm.

2 Raadi wareega laydi dhererkiisa iyo balaciisu yihiin

b 3 sm iyo 5 sm **t** 10 m iyo 20 m **j** 13 mm iyo 15 mm

x b halbeeg iyo t halbeeg

3 Raadi badka laba jibbaarane dhinacyadiisu yihiin

b 10 sm **t** 11 mitir **j** 12 milimitir **x** 15 desimitir

4 Raadi badka laydi dhinacyadiisu yihiin

b 3 sm iyo 6 sm **t** 5 sm iyo 11sm

j 6 sm iyo 14 sm **x** 12 sm iyo 13 sm.

5 Haddii badka laba jibbaarane ahi yahay

b 25santi mitir laba jibbaaran **t** 100mitir laba jibbaaran

j 9 santi mitir laba jibaaran **x** 16santi mitir laba jibbaaran.

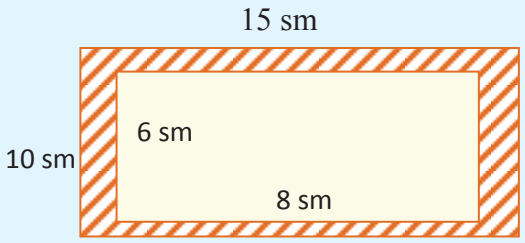
Raadi dhinacyadiisa.

6 Haddii badka laydi yahay 16 santimitir labajibaaran oo dhererkiisuna yahay 8 santimitir, waa imisa dhererka ballacu?

7 Raadi badka roog dhererkiisu yahay 10m ballaciisu yahay 8 m?

8 Raadi Badka dhul laba jibaarane ah oo dhererka dhinaciisu yahay 12 mitir?

9 Raadi badka qaybta hadhaysan ee shaxanka 5.61.



Sawirka 5.61

10 Haddii badka laydi dhererkiisu yahay 8 sm ballaciisuna yahay 2 sm uu la mid yahay badka laba jibbaarane, raadi wareega laba jibbaaranaha?

11 Haddii wareeg laydi yahay 16 sm oo ballaciisuna yahay 3sm, waa imisa dhererka dhinaciisu?

12 Haddii wareega laba jibaarane yahay 12 mitir waa imisa badkiisu?

13 Raadi badka laba jibbaarane haddii wareegiisu yahay.

b 32 sm **t** 24 mitir **j** 40 sm.

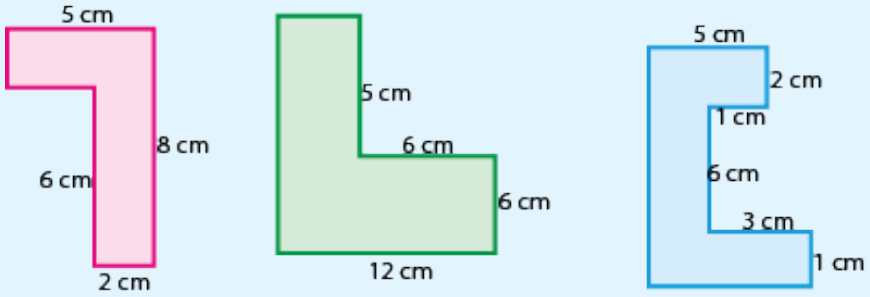
14 Raadi dherer silig la doonayo in lagu wareejiyay afar wareeg beer laydi ah, oo dhererkeeda iyo ballaceedu yihiin 120 m iyo 90 m?

15 Dherer laydi waa laban laabka ballaciisa haddii wareegu yahay 96 sm, raadi bedka laydiga?

16 Imisa laydi ayaa laga samayn karaa wareeg dhan 24 sm, haddii dhinacyadu ay yihiin santimitir togan?

17 Beer laba jibaarane ah oo leh dhinacyo 5 m ah, raadi qiimaha dayrkeeda haddii 4tii halbeegba ay yihiin hal birr.

18 Raadi badka shaxan kasta oo hoos ku qoran.



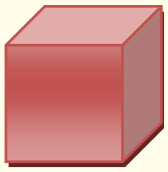
Sawirka 5.62

5.5.2 WEJIYADA SADDEX JIBBAARANAYAASHA IYO BIRIISAMYADA LAYDIYEED

Xasuus:

1 Saddex jibbaaranuhu waa sanduuq dhammaan geesihiisu isleegyihiin.

2 Biriisam laydiyeedku waa sanduuq ay wajiyadiisu ka samaysan yihiin gobolo laydi ah, oo geesihiisuna ay isku qotomaan midba mida kale.



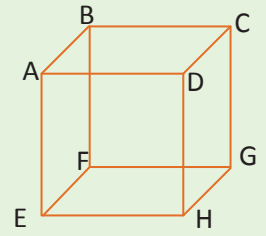
Shaxanka 5.63

3 Shabaqyada saddex jibbaaranuhu ama biriisam laydiyeedku waa habayn la googooyay oo laysku labalaabay si ay u sameeyaan saddex jibbaarane ama birsam laydiyeed.

Hawlgalka 5.11

Aan qaadano (tixgalino sanduuq sida saddex jibbaarane ah oo ka samaysan warqad adag oo la googooyay, oo geesaheeda dhererkoodu yahay 5sm.

b sanduuqa waxaad ka gooysaa geeska AB, AD, DC, CG, DH, AE IYO BF, dabadeed kala dhig-dhig



t isbarbar dhig shaxanka aad kala dhig dhigtay ee ka samaysmay a iyo shaxanka hoose.

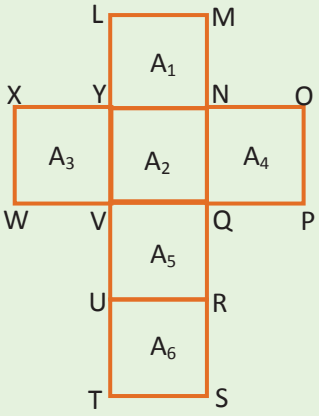
j Afar geesoodle noocee ah ayaa ka samasyma shabaqa?

x Afar geesoodle kasta waa imisa dhererka dhinaciisu?

kh waa imisa wadarta bedka afar-geesoodlayaashu?

d ku midabee gobolka A_1 iyo A_5, midab doogah, A_3 iyo A_4 midab dacar ah, A_2 iyo A_6 midab cas.

r wajiyadee ayaa afar geesoolaha u taagan midabka dooga ah ? wajiyadee ayaa midabka huruuda ah ee afar geesoolayaasha u taagan? Wajiyadee ayaa midabka cas ee afar geesoolayaasha u taagan?



Sawirka 5.64

s iskaga soo laab shabaqyada UR, VQ, QN, YN iyo YV, dabadeena fiiri adkaha soo baxa. Ma seddexjibaaranaa?

sh isbarbar dhig wadarta bedka wajiyada saddex jibbaaranaha iyo wadarta bedka gobolada ma isku midbaa labada bed ?

Howlgalka xaga sare ku xusan Waxan ku soo aragnay waxyaalaha soo socda.

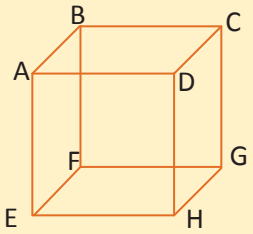
- Marka sanduuqa seddexjibaanaha la googooyo ee la kala dhigo shabaqa waxaa ka samaysmi sanduuq leh lix waji oo labajibbaaraneyaal ah
- Wadarta bedka wajiyada sanduuqa wajigiisu labajibaaranaha yahay waa wadarta bedka gobolada labajibbaaranaha ah ee shabaqa uu ka samaysmay seddex jibaaranuhu.

SHAQO KOOXEEDKA 5.8

Aan tixgalino birisam xidhan ee ABCDEFGH ee dhinacyadiisu yihiin 3 sm, 4 sm, iyo 5 sm, kasoo ka samaysan warqad adag

b Birisamka ka goo AD, AB,BC, AE, BH, CE, DF.

Kalana dhig dhig sanduuqa fiiri shaxanka ku soo baxa.



t isbarbar dhig shaxanka aad kala dhig dhigtay iyo shaxanka hoose?

j shaxan noocee ah ayaa ka samaysma shabaqyada birisamka ?

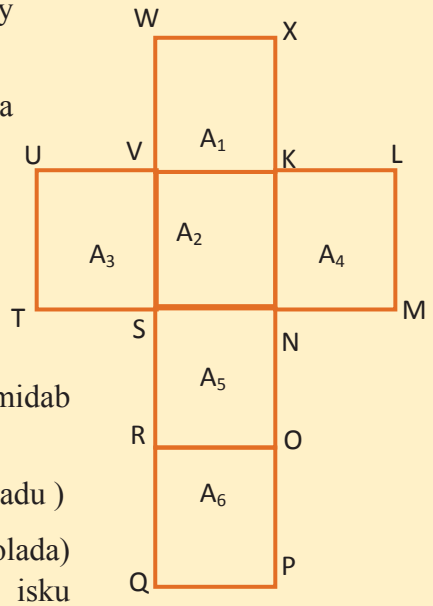
x imisa lammaano oo laydiyo ah oo leh bed isku mid ah ayaa ka samaysma shabaqa.

kh waa maxay dhinacyada laydiyada ka samaysma shabaqa ama gobolada?

d A_1 iyo A_5 midab doog ah mari, A_3 iyo A_4 midab huruud ah mari A_2 iyo A_6 midab cas mari

r waa imisa wadarta bedka shabaqyadu (gobaladu)

s isbarbardhig wadarta bedka shabaqa (gobolada) iyo wadarta wajiyada birissamka, ma isku midbaa?



Sawirka 5.66

sh haddii aad isaga soo laabto shabaqyada (gobolada) RQ,SN,NK,VK iyo VS ayna sameeyaan adke, miyuu noqon doonaa birisamkii hore? waa maxay dhinacyada adkaha cusubi?

Shaqo kooxeeda xaga sare, waxaad ku ogaan doontaa in

- Marka birisamka laydiyeed la kala googooyo ee laga kala dhigdhigo BX,BT,TJ,BKH,TD,TR, iyo XS shabaqa birisamka ayaa samaysma
- Goboladani (shabaqyadani) waxaa ka samysma seddex lammaane laydi oo leh beddad isku mid ah.
- Dhinacyada laydiyadu waa 3sm iyo 4sm, 4sm iyo 5sm, 3sm iyo 5 sm.
- Marka shabaqyadan ama goboladan laysaga laabo RO,SN,NK,VK iyo VS waxaa samaysma adkihii hore.

LAYLISKA 5.12

1 samee gobolada seddex jibaaranaha dhinacyadiisu yihiin 6sm iyo 6sm, 6sm midabee labajibaaranayaasha ka samaysma salalka dooga ah, labajibbaaraneyaasha ka samaysma lammaanaha wajiyada huruuda ah iyo kuwa cas. Raadi wadarta bedka wajiga seddex jibaaranaha, adigoo raadinaya bededka labajibaaraneyaasha.

2 Samee gobolada birisam laydiyeedka dhinacyadiisu yihiin 2 sm, 3 sm iyo 6 sm midabee laydiyada ay sameeyaan salalka dooga ah, laydiyada ay sameeyaan wajiyada huruurda ah iyo kuwa casi, raadi wadarta bedka birisamka adigoo raadinaya bededka gobolada (shabaqa) birisamka.

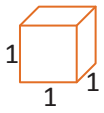
3 Imisa labajibaarane ayaa sameeya shabaqa saddex jibaarane (sanduuqa)?

4 Imisa lammaane laydi oo leh bed isku mid ah ayaa sameeya shabaqa birisam laydiyeedka?

5.5.3 MUGGAGA SANDUUQYADA WAJIYADOODU LABA JIBBAARANAHA YIHIIN IYO BIRISAMYADA LAYDIYEED

Tusma hoosaadkan waxaad gacanta ka qabandoontaa sida loo qiyaaso muggaga sanduuqyada wajigoodu yahay laba jibbaarane iyo birsam laydiyeedka, adigoo ka buuxinaya saddex jibaar halbeegyo.

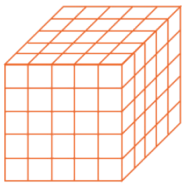
Ogow: saddex jibbaarane halbeeg waa sanduuq dhinacyadiisu yihiin laba jibbaarane dhinacyadiidu yahay 1 halbeeg.



Sawirka 5.66

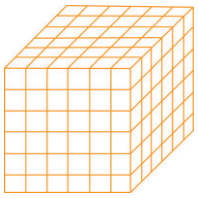
Tusaalaha 1aad: aan tixgalino sanduuqa wajiyadiisu yihiin laba jibbaarane dhinacyadiisu yihiin 5 sm. Sanduuqu wuxuu qaadi karaa (5 sm × 5 sm)

Saddex jibbaarayaal = 125 sm sanduuq saddex jibbaarane.


Sawirka 5.67

Tusaalaha 2aad: imisa santi mitir oo saddex jibaaran ayaa lagu buuxin karaa saddex jibaarane dhinacyada wajiyadiisu yihiin 6sm.

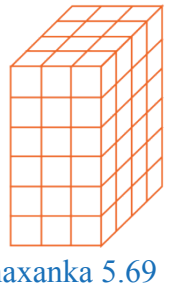
Furufuris: saddex jibaaranaha (sanduuqa) waxaa laga buuxin karaa 6 sm × 6 sm × 6 sm = 216 sm saddex jibaaran.


Sawirka 5.68

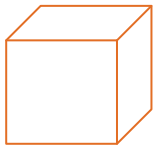
Saddex jibbaarane wajiyada, dhinacyadiisu yihiin a waxaa laga buuxin karaa (a halbeeg X halbeeg X a halbeeg) = a^3 hal beeg oo saddex jibaarane, haddaba mugga sanduuqa sadex jibbaarane dhinaciisu yihiin a halbeeg waa a^3 halbeeg oo saddex jibaaran.

Tusaalaha 3aad: imisa santi mitir oo saddex jibaaran ayaa laga buuxin karaa birisam laydiyeed dhinacyadiisu yihiin 3 sm, 4 sm iyo 5 sm.

FurFuris: birisamka waxaa laga buuxin karaa (3 sm × 4 sm × 5 sm) = 60 sm oo saddex jibbaran.


Shaxanka 5.69

Ogow: Biriisam laydiyeedka dhinacyadiisu yihiin ℓ halbeeg, w halbeeg iyo H halbeeg waxaa uu qaadi karaa (l × w × H) hal beegoo saddex Jibaaran.


Shaxanka 5.70

Hadaba, mugga biriisam laydiyeedka dhinacyadiisu yihiin ℓ, w iyo h halbeeg waa (l × w × h) halbeeg oo saddex jibaaran.

Halka iyo tusaalayaasha xagga sare ku xusan.

- Saddex jibbaarane (box) dhinacyadiisu xidhan yihiin, xaddiga gudihiisa ahi waa muggiisa, muggan waxaa lagu cabbiri karaa ayadoo laga buuxiyo saddex jibaarane halbeegyo (sanduuq dhinacyadiisu yihiin laba jibbaarane dhinaciisu yahay 1 halbeeg) mugga sanduuq dhererka dhinacyadiisu yihiin a halbeeg = a^3 halbeeg oo saddex jibaaran.
- Biriisam laydiyeedka dhinacyadiisa dhererkoodu yahay ℓ, W iyo h inta u dhaxaysa ee wajiyadiisu ay ku xidhan yihiin waa mugga birisamka. Mugga saddex jibbaarane dhinacyadiisa dherer koodu yahay ℓ, W iyo h halbeeg waa V = (l × w × h) halbeeg oo saddex jibaaran.

LAYLISKA 5.13

1 Buuxi mugga saddex jibaarane dhinacyadiisu yihiin

b 8 sm **t** 6 sm

j 7 sm adigoo tirinaya inta santimitir saddex jibaaran.

2 Ka buuxi mugga birsam laydiyeedka dhinacyadiisu yihiin:

b 1 sm, 5 sm iyo 6 sm **t** 10 sm, 4 sm iyo 12 sm

j 11 sm, 12 sm, 14 sm adigoo tirinaya inta santi mitir saddex jibaaran ee laga buuxin karo birisan

3 Sanduuq ka samaysan xadiid (iron) ayaa dhinacyadiisu yihiin 2 sm, 4 sm iyo 8sm. Sanduuqii waa la dhalaaliyay waxaan ka samaysmay saddex jibbaarane waa imisa dhinacyada saddex jibbaaranuhu?

4 Birisam laydiyeed leh labadan dhinac 12 sm iyo 2 sm, haddii mugga birisamku yahay 72 sm saddex jibaaran, raadi dhinac hadhay?

5 Raadi dhererka dhinaca saddex jibaarane mugiisu yahay 8 santimitir saddex jibaaran.

6 Haddii mugga saddex jibbaarane iyo birisam laydiyeed dhinacyadiisu yihiin 8 sm, 4 sm iyo 2 sm ay isku mid yihiin, raadi dhinaca saddex jibbaarane.

7 Imisa senti mitir saddex jibaaran oo biyo ah ayey qaadi kartaa walax dherer keedu yahay 6 cm, ballaceeduna yahay 4 cm, joog ee duna yahay 10 cm?

8 Imisa sentimitir saddex jibaaran ayaa oo caano ah ayaa laga buuxin karaa birisam laydiyeed dhinacyadiisu yihiin 5 sm, 10 sm iyo 3 sm?

9 Waa maxay halbeega badku? waa maxay halbeega mugga?

Erayada Furaha ah

- Xariiqyo isgooya
- Xariiqyo isku qotoma
- Lammaane kombasyo ah
- Mastarad
- Xagal
- Geeska xagasha
- Halbeega digrii ee xagasha
- Xagal qaybiye
- Saddex xagal fiiqan, saddex xagal
- Xagal quman, saddex xagal daacsan
- saddex xagal aan isleekayn
- saddex xagal labaale ah
- saddex xagal siman
- Wareega geesoole, badka geesoole
- Saddex jibaaranayaasha iyo
- birisam laydiyeeyo
- Mugga sanduuqa saddex jibaaarane
- shabaga (gobolada)
- laydiyeedka
- halbeeg saddex jibaaran
- santi mitir saddex jibaarane.
- xariiqyo barbaro ah
- xariiqyo isku qotoma oo laba meelood oo isleeg u qaybiya xariijin lagu siiyay.
- qalabka laba jibaaranaha ah
- bar-badhtanka xariijinta.
- dhinaca xagasha
- xagal cabire.
- xagal fiiqan
- xagal daacsan
- xagal quman
- xagal toosan
- xagal dhacsan
- xagal dhamaystiran.
- saddex xagal
- dhidibada wanqarka
- iyo biriisam laydi yeedyada.
- saddex jibaaranaha iyo biriisam
- Halbeeg laba jibaaran
- Santi mitir laba jibbaaran

Soo koobida cutubka 5

- ✓ Laba ama in ka badan oo xariiq oo isku sallax ahi ama way isjaraan ama waa barbaro.
- ✓ Laba xariiqood oo barbaro ah oo isku sallax ku dhacaa si kasta haddii loo fidiyo isma jaraan.
- ✓ Laba barood oo lagu siiyay waxaa mari kara uun hal xariiq oo labadoodu dul dhacaan.
- ✓ Xariiq iyo bar lagu siiyay oo aan dul oolin.

waxaa jira xariiqo badan oo aan la tirin Karin oo mara bartaa xariiqda.

Waxaa jira hal xariiqa oo kaliya oo barbaro la ah xariiqda lagu siiyay martana bartaas lagu siiyay.

- ✓ Haddii P iyo Q ay yihiin laba barood, kuwaas oo ku wanqaran (fogaan isleeg uga kala jira labada dhinac) xariiqda L, dabadeed L waxaa la yidhaahdaa dhidibka wanqarka iyo wanqarka ku qotoma ee labada isleeg u qaybiya xariijinta PQ.
- ✓ Xagal waa inta furan ee u dhaxaysa laba fallaadhood oo is jara. Fallaadhaha sameeya xagasha waxaa la yidhaahdaa gacmaha ama dhinacyada xagasha. Barta ay labada fallaadhood ku kulmaan waxaa la yidhaahdaa geeska xagasha.
- ✓ Xagasha badanaa waxaa lagu cabiraa xagal cabire (protractor).
- ✓ Halbeega caanka ah ee xagasha lagu cabbiraa waa digrii, waxaana loo qoraa (^{o})
- ✓ Xaglaha waxaa loo magacaabaa siyaabo kala duwan.
- ✓ Xaglaha waxaa lagu kala soocaa cabbirkooda.
- ✓ Xaglaha fiicani waa xagasha cabbirkeedu u dhexeeyo 0^o iyo 90^o.
- ✓ Xagal qumani waa xagasha cabbirkeedu yahay 90^o.
- ✓ Xagal toosan waa xagasha cabbirkeedu yahay 180^o.
- ✓ Xagal dhacsan waa xagasha cabirkeedu u dhexeeyo 180^o iyo 360^o.
- ✓ Xagal dhamaystiran waa xagasha cabbirkeedu yahay 360^o.
- ✓ Xagal qaybiye waa fallaadha labada isleeg u qaybisa xagasha lagu siiyay.
- ✓ Saddex xagal waa geesoole saddex dhinac leh, lehna 3-xaglood, saddex gees iyo bad.
- ✓ Saadex xagal waxa lagu kala saaraa dhererka dhinacyadiisu ama cabbirka xaglihiisa.
- ✓ Saddex xagal leh xagal fiiqan, waa saddex xagalka saddexdiisa xaglood yihiin xaglo fiiqan.
- ✓ Saadex xagal guman waa saddex xagal hal xagal oo xaglihiisa ka mid ahi ay tahay 90^o.
- ✓ Saddexagal daacsan, waa seddexagalka leh hal-xagal ah oo daacsan.
- ✓ Seddexagal aan isle, ekayn waa seddexagalka aanay jirin laba dhinac oo isle, eg.

- ✓ Seddexagal siman, waa seddexagalka seddexdiisa dhinac ay isle,eg yihiin.
- ✓ Wadarta 3 xaglood ee seddexagal waa 180^o
- ✓ Wareegyada laba jibaarane iyo laydi waa wadarta dhererka dhinacyadooda
- ✓ Bededka labajibbaarane iyo laydi waa xaddiga ku dhex-xidhan laydiga iyo labajibaaranaha. Badanaa waxaa ku muujinaa (cadeynaa) bedka halbeeg labajibaaran,
- ✓ Wareega labajibaarane dhinaciisu yahay 5 waa $(5\times5) = 5^2$ halbeeg labajibaaran
- ✓ Wareega laydi dhinacyadiisu yihiin L iyo W waa 2 (L+W) halbeeg
- ✓ Bedka laydi dhinacyadiisu yihiin L iyo W waa (L×W) halbeeg labajibaaran
- ✓ Seddexjibaarana waa sanduuq dhinacyadiisu dhamaan ay isle, eg yihiin.
- ✓ Birisam laydiyeedku waa sanduuq geesihiisu ay isku qotomaan, dhamaan wajiyadiisuna ay yihiin laydiyo.
- ✓ Mugga seddexjibaarane geesihiisu yihiin a halbeeg waa halbeeg seddexjibaaran = a^3 halbeeg saddex jibbaatan.
- ✓ Mugga birisam laydiyeed dhinacayada wajiyadiisu yihiin l, w iyo h waa (l×h×w) halbeeg seddexjibaaran
- ✓ Mugga seddexjibaarane iyo birisamyada waxaa lagu qiyaasi kara ayadoo laga buuxiyo seddexjibaarane halbeegyho yar-yar.

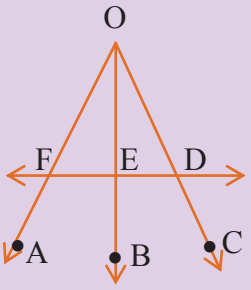
Laylis guud

Laylisyada nakhtiinka ah ee ee cutubka 5aad

1 **b** magacow lammaanayaasha xariiqyada isjara

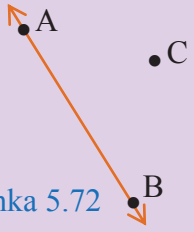
t halkee ayey iska jaraan FD iyo BO

j FD iyo CD miyey isjaraan? haday haa tahay halkee ayey iska jaraan?



Shaxanka 5.71

2 Adigoo isticmaalaya qalabka labajibaaranaha ah (set square) iyo mastarad sawir xariiq marta bart C barbarona la ah BT



Shaxanka 5.72

3 Adigoo isticmaalaya mastarad iyo kombas dhis xariiqda ku qotonta xariijinta AB ee labada isle, eg u qeybisa AB dhererkeeduna yahay 20 sm

4 dhis xariiqda sawirka 5.73 marta R ee ku qotonta PQ

5 P iyo P waa laba barood oo wanqaran, haddii dhererka PP uu yahay 30 sm.

b bartee ayey PP ka martaa L?

t L miyey ku qotontaa PP?

6 Kasoo qaad in cabbirka $\angle ABC$ tahay 50^o, adigoo isticmaalaya kombas iyo mastarad laba isle,eg u qeybi xagasha

7 Haddii dhererka dhinacyada seddexagalka lagu siiyey yihiin

b 3.5, 2.7 iyo **t** 4,4 iyo 5 **j** 3, 3 iyo 3

Seddexagal kastaa waa noocma?

8 Haddii laba xaglood oo sddexagal lagu siiyey ay yihiin 124^o iyo 50^o raadi cabbirka xagasha 3^{aad}? Waana noocma?

9 Haddii dhinaca labajibaarane yahay 5 sm , raadi

b wareegiisa **t** bedkiisa.

10 Haddii dhererka laydi yahay 5sm, bedkiisuna yahay 15 sm^2, raadi.

b ballaca laydiga **t** wareega laydiga

11 Dhinacyada sibidhka qolka ayaa ah 3 m iyo 5 m qof ayaa doonayey in uu sibidhka dhigo mar-mar dhagax ah oo leh qaab labajibaarane oo dhinaciisu yahay 10 sm. Imisa dhagax oo mar-mar ah ayaa loo baahan yahay in la dhigo sibidhka qolka?

12 Sanduuq ayaa leh qaab seddexjibaarane dhinaca geesihiisu yahay 6 sm. Waa intee inle, eg bedka sanduuqu?

13 Weel (shaywaxqaada) ayaa leh qaab birisam laydi. Hadii dhinacyadiisu yahay 1 m, 2 m iyo 4 m raadi mugga weelka.

14 Raadi mugga seddexjibbaaranaha dhinaciisu yahay

b 3 sm **t** 5 sm **j** 6 sm.

15 raadi mugga birisam laydiyeedka dhinacyadiisu yihiin.

b 8 sm, 4 sm iyo 6 sm. **t** 2 m, 3 m iyo 4 m