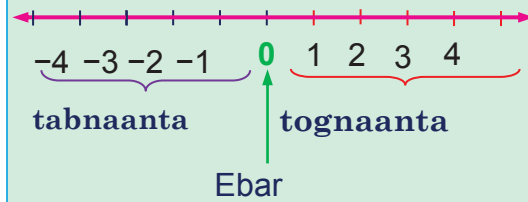


CUTUBKA 4^{aad}



ABYOONEYAASHA

Maxsuulka Cutubka:

Cutubkan dabadii, ardaydu waxay awoodi doontaa;

- *in ay fahmaan fikirka abiyoonayaasha*
- *in ay ku soo jeediyaan abiyoonayaasha dusha xariiqa tirada*
- *in ay ka shaqeeyaan xisaab falooyinka.*

Tusmooyinka ugu muhiimsan:

4.1 Hordhaca Abyoonayaasha

4.2 Isbarbardhiga iyo Habeynta Abyoonayaasha

4.3 Iskudarka iyo kala jarka Abyoonayaasha

Hubin

Soo koobidda cutubka

Layliska nakhtiinka

HORDHAC

Cutubkan waxaa ku sugan dabeecadaha abyoonaaha iyo qaar ka mid ah artimeetikada abyoonaaha. Ujeeddada cutubkan waa fahanka lidka, tirooyinka togan iyo kuwa taban, xariiqta tirada iyo calaamadaha. Waxaa kaloo cutubka ka mid ah cashiro ardayda fahansiin doona waxa uu yahay abyoone, sida loogu isticmaalo nolosheena dhabta ah, iyo kadib wuxuu siin doonaa istiraatiijiyada iyo xeerarka iskudarka, kala goynta, isbarbardhigida iyo habeynta abyooneyaasha.

4.1 BARASHADA ABYOONEYAASHA

Hawlgalka 4.1

Ka soo qaad inaad haysatid 5 Birr, Haddii Nacanaca qiimahiisu yahay 1 Birr

- b** Haddii aad iibsato 3 nanac ah, Imisa Birr ayaa kuu hadhay?
- t** Haddii aad iibsato 5 nanac ah, Imisa birr ayaa kuu hadhay?
- j** Miyaad ku iibsan kartaa 7 nanac ah lacagta aad haysata?
- x** Haddaad doonayso inaad iibsato 7 nanac, maxaad samayn?

Waa maxay qiimaha faraqa u dhaxeeya 10 iyo 9? Waxaa cad jawaabtaadu in ay tahay 1. Laakiin maxay tahay jawaabtaadu markii lagu su'aalo qiimaha $9 - 10$? Waxaa laga yaabaa in aad odhatid su'aashani ma laha jawaab, sababtoo ah ururada tirooyinka ah eed soo dhigatay sida tiro idil ayaa dhici karta in uusan ku siinin. Si kastooy tahayba xisaabfalka kore waa mid macno ku fadhiya.

Ka soo qaad waxaad haysataa 9 riyaal waxaad rabtaa in aad ku gadato kubad yar qiimaheedu yahay 10 riyaal. Waxaad ogtahay inaynan kuu goyneynin lacagta aad wadatid sababtoo ah waxaa kaa dhiman 1 riyaal. Laakiin waxaa laga yaabaa in aad leedahay saaxiib ku amaahiya hal riyaal kadib sagaalkii riyaal eed haysatay si ay kuugu noqoto 10 riyaal kadibna, waxaad ku gadan kubadii yarayd, dhanka kale haddii aad haysatid 11 riyaal, hal riyaal baa dheeri ku noqon qiimaha kubadda.

Tusaalahan kore waxaan ka fahmi karnaa in 9 riyaal ay ka yar tahay hal 10 kariyaal, iyo kadib waxaad haysataa riyaal dheeri ah si aad u gadatid kubadda, hal dheeri ah waxaa lagu muujiyaa $+1$. hal ka yar wuxuu ku lid yahay hal dheeri ah. Waxaynu isticmaali -1 si aan u muujino hal ka yar. Taas oo ah -1 waa lidka $+1$.

Boqolaal sano ka hor xisaabyahanadu waxay garteen dhibaatooyin badan in lagu xalin lahaa haddii loo helo wado lagu helo tirooyinka ka hooseeya ebar.

Sidaa darteed, waxay go'aansadeen in ay u qoraan $0 - 1 = -1$, taas oo loo akhriyo sida “hal taban” oo lamacno ah “hal ka yaree bar”. Inaga oo ka anbaqaadeyna wixii kor aan ku soo sheegnay ee ahaa dayntii riyaalka ahaa, waxaynu arki karnaa $9 - 10 = -1$ (markii aad kharashgareysay 10, waxaa ku soo raacay riyaalkii saaxiibkaa).

$-1 + 1 = 0$ (markii aad kaydisid hal riyaal eed saaxiibkaa u celisid, waxaad haysaa waxba). Heer kulku waa wado kale oo loo adeegsado abiyoonaha. Fiiri kulbeega, iyo waxaad arki doontaa in heerkulku uu u dhaadhici karo ilaa dhigriiga ebar.

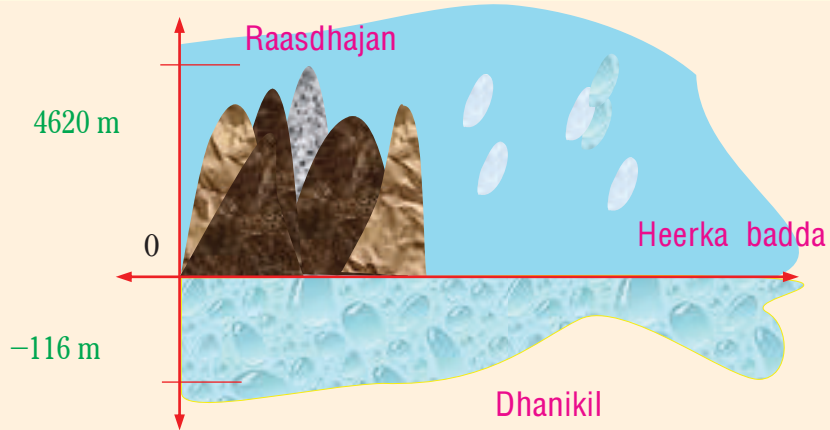


Jaantuska 4.1

Heerkulka ka hooseeya eber waxaa lagu qoraa tirooyinka taban, sida -5 digrii taas oo lamacno ah 5 digrii yuu ka hooseeyaa eber, haddii heerkulka xiliga hadhsiiimaha uu yahay 9 digrii iyo habeenkiina uu noqdo 12 digrii oo qabaw ah, wuxuu noqon doonaa -3 digrii.

Hadda bal aan eegno masalooyinkan soo socda.

Tusaale 1: Buurta ugu dheer Itoobiya waa Raasdhan, midaas oo heerka badda ka sareysa 4,620 metir. Meesha ugu hooseysa waa Dhanakil, midaas oo heerka badda ka hooseysa 116 metir. Waa maxay faraqa u dhaxeeya cidhifka u sareeya ee Raadhajan iyo salka Dhanakil?



Jaantuska 4.2

Furfuris: Cidhifyada waxaad ku muujin kartaa abiyoonaaha.

	Abiyoone
4,620 metir ka sareysa heerka badda	+ 4,620
Heerka badda	
116 metir ka hooseysa heerka badda	-116

Fogaanshaha laga bilaabo cidhifka buurta Raasdhan ilaa heerka badda waa 4,620 miter iyo fogaanta heerka badda ilaa salka Dhanakil waa 116. Wadarta fogaantu waa 4,736 miter.

Masaladan kore waxa loo isticmaalay fikirka iskulidka. Ka koreeya heerka badda wuxuu lid ku yahay ka hooseeya heerka badda.

Halkan waxaa ah tusaalooyin dheeraad ah:

Dib u dhac, Horumar	Qaate, bixiye	Kor, hoos	Yar, badan
---------------------	---------------	-----------	------------

Hawlgalka 4.2

1 Qor tiro ka turjumeysa xaalad kasta

Xaalada	Qiimaha tirada
10 digrii oo ka sareysa ebar	
Khasaare 13 riyaal ah	
Dib u dhac saddex talaabo ah	

2 Qor abiyoono ka turjumaya weedhahan soo socda

Guuleed markii u galay socdaal 5: oo subaxnimo u ku qaadanayay tababar, heerkulku wuxuu ahaa 40° oo ka hooseeya ebar. Markii uu soo noqday 9:30AM heerkulku wuxuu ahaa 11° oo ka sareeya ebar.

Qeexid 4.1: Ururka abiyoono ee lagu calaamadiyo \mathbb{Z} wuxuu ka kooban yahay tirooyinka tirsiiimo, lidkooda, iyo Ebar, midaas oo ah $\mathbb{Z} = \{ \dots -3, -2, -1, 0, 1, 2, 3 \}$

Tusaale 2: Lidka 4 waa -4 iyo lidka -6 waa 6.

Maadaama 0 ayna ahayn togane ama tabane toona, lidka 0 waa 0 (midaas oo ah 0 iyada qudhigeeda yaa lid isku ah).

Abiyoono yaashu waxaa lagu calaamadiyaa \mathbb{Z} (midaas oo u taagan erayga “Zahlen” kaas oo ah luuqada Jarman macnaheedu yahay abiyoono).

Dhinac kale Abiyoonuhu wuxuu ka kooban yahay tirooyin tirsiiimo, ebar iyo lidka tirooyinka tirsiiimo.

$\dots, -4, -3, -2, -1, 0, 1, 2, 3, 4, \dots$

Ebar

“–” waa calaamada tabnaanta

“+” waa calaamada tognaanta

Midaasi waxay tahay abiyoonada taban waxay leeyihiin calaamada “–” oo lagu dhigayo tirada horteeda. Sidaa darteed, -3 waa abiyoono taban waxaa loo akhrin sida “saddex taban”.

Calaamad ma leh macnaheedu waa toгнаan

Haddii tirada horteeda ayna lahayn calaamada toгнаanta, macnaheedu waxaa weeye tiradu wey toгон tahay.

Tusaale: 5 run ahaan waa + 5 ama 5 waxaa loo akhrin sida “shan toгон| ama “shan”, 0 waa abiyoone laakiin ma aha mid toгон iyo mid taban toona. Waa tiro lagu cabiro madhnaanta; taas oo ah haddii tirada riyo cadkaadu ay tahay ebar, waxay ka dhigantahay wax riyo cad ah ma lihid. Haddii imtaxaanka aad uga jawaabtid si saxa waxay ka dhigan tahay ma lihid wax khalad ah ama jawaabaha khaladkaagu waa 0. Intaadan bilaabin tirsiga, natiijada waxaa laga soo qaadi ebar; midaas oo ah tirsiga alaabta, sheyga u horeeya intaadan tirsigiisa bilaabin waa ebar.

Fiiro gaar ah, hadeyna jirin wax alaab ah oo la tiriyo, natiijadu waa ebar.

Shaqo Kooxeedka 4.1

- 1 Magacaw labo xaaladood oo nolosha dhabta ah oo lagu isticmaalo abiyoona.
- 2 Magacaw lidka tirooyinkan abiyoone
-15, +44, +9, -53, 88, 17, -37.
- 3 Isticmaal jaantuska feen si aad u tustid xidhiidhka ka dhaxeeya ururada $\mathbb{N} = \{1, 2, 3, \dots\}$, $\mathbb{W} = \{0, 1, 2, 3, \dots\}$ iyo $\mathbb{Z} = \{\dots, -3, -2, -1, 0, 1, 2, 3, \dots\}$.

Laylis 4.1

- 1 Qor abiyonaha u taagan (matala) kuwan soo socda;
 - b** 210 fiit oo ka sareysa heerka badda.
 - t** 162 mitir oo ka hooseysa heerka badda.
 - j** 12 digrii oo ka hooseysa bar ku barfidda.
 - x** Khasaare 100 riyaal ah.
 - kh** Helitaanka 10 buundo oo natiijo imtaxaan ah.
 - d** 150 riyaal ood kala soo baxday bangiga.
 - r** 400 oo riyaal ood gashatay bangiga.
- 2 Qor lidka tirooyinkan abiyoone ee soo socda

b 61	t +73	j 36C°
x 0	kh -12C°	d -16

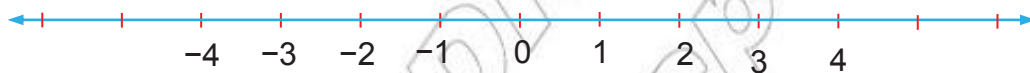
4.2 ISBARBARDHIGIDDA IYO HORSANAANTA ABYOONEYAASHA

Isbarbardhigida iyo horsanaanta abiyoneyaasha waxaad ku arki doontaa sida la isu barbardhigo labo abiyoneyaal oo lagu siiyay iyo tirooyin la calaamadiyay oo laga soo bilaabay tiro weyn una socota tiro yar iyo mid ka socota tiro yar una socota tiro weyn iyo iyada oo la isticmaalayo ama aan la isticmaaleynin xariiqa tirada.

i. Xariiqa tirada

Xusuusnaw abiyoonuhu waa tiro kastoo idil $\{0, 1, 2, 3, \dots\}$ ama lidkood.

Wadada ugu fiican isbarbardhiga abyoonaada waa isticmaalida xariiqa tirada, midkaa oo loo adeegsado in lagu soo bandhigo tirooyinka togan iyo kuwa taban oo lahabeeay. Xariiqa tirada dushiisa ku muuji barta tirada ebar (aas'aas ahaan). Tirooyinka toganee abiyoonaha waxay dhacaan dhanka midige ee ebarka iyo abiyoneyaasha tabanna waxay dhacaan dhanka bidixe ee ebarka. Xariiqa tiradu sidan buu u muuqdaa.



Jaantuska 4.3

Tirooyin badan (xad dhaaf ah) ayaa jira dhanka midig ee xariiqa tirada, waana tirooyinka ugu waaweyn. Tirooyin xad dhaaf ahna waxay jiraan dhanka bidix ee xariiqa tirada, waana kuwa ugu yar.

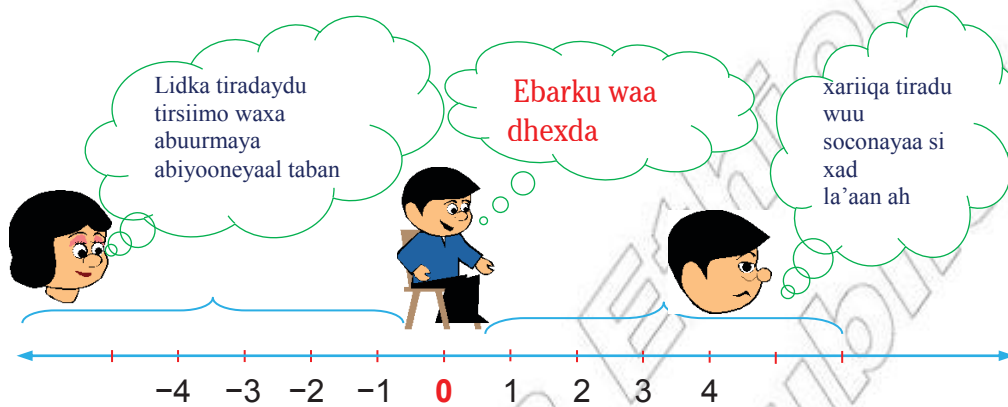
Hawlgalka 4.3

U qor tirooyinkan abiyone ee soo socda ado ka soo taxaya yaraantooda ilaa weynaantooda.

1	b	0, -3, -5	t	-7, 1, -2	j	-8, -3, 0
	x	2, 4, 0	kh	-5, 5, -9	d	-1, -2, -3
2	Adigoo ka bilaabaya ka ugu weyn ilaa ka ugu yar					
	b	-3, 7, 1	t	9, -9, 0	j	2, -2, -12
	x	-9, -8, -7	kh	4, -4, 5	d	-1, -10, 1

ii. Sawiritaanka xariiqa tirada

Xariiqa tirada waxaa lagu soo bandhigaa qaabka jiif ahaan. Xeer ahaan tirooyinka togan waxay dhacaan dhanka midig ee ebarka, iyo tirooyinka taban waxay dhacaan dhanka bidix ee ebarta. Falaadha labada dhinacba waxay tilmaameysaa xariiqu in uusan xad lahayn labada dhinacba oo uu soconayo.



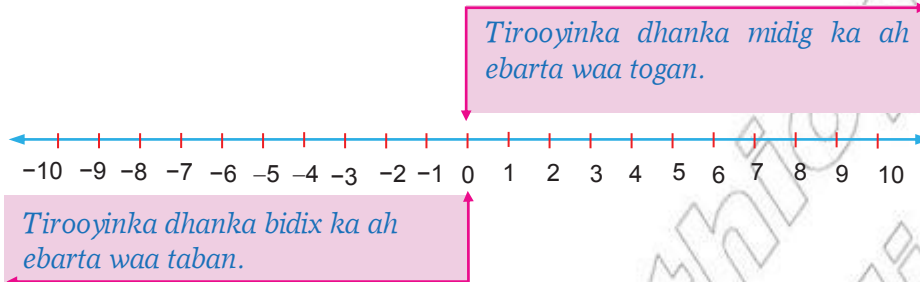
Jaantuska 4.4

iii. Isbarbardhiga abiyoonayaasha xariiqa tirada dushiisa



Jaantuska 4.5

Si aad isubarbardhigtid abiyoonada xariiq tirada dushiisa, si fudud qiimahaada ugu meelee dusha xariiq, adigoo tirooyinka togan ku dhigaya dhanka midig ee ebarta kuwa tabana ku dhigaya dhanka bidix ee ebarta. Tirada sii xagta jirta dhanka midig waa tirada ugu weyn. Tirada dhanka bidix sii xagta jirtana waa tan ugu yar.



Jaantuska 4.6

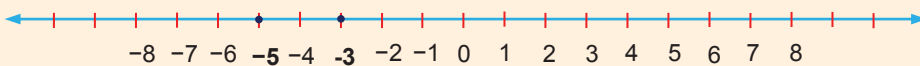
F.G: Marwalba labo tiro kasta oo ku yaala dusha xariiq tirada, tirada bidix waxay ka yartahay tirada midig.

Tusaale 1: keebaa weyn, -5 ama -3 ?

Furfuris:

Talaabada 1: Sawir xariiq tirada xulo barta (dhibicda) ebarta. Kadib, ku buuxi qiimaha abiyoonayaasha xariiq dushiisa.

Talaabada 2: Ku meelee abiyone yaasha aad tartansiineyso dusha xariiq tirada, maadaama labada tirooyinba ay taban yihiin, labaduba waxay ahaan doonaan dhanka bidix ee ebarta.



Jaantuska 4.7

Sidaad u aragtidba -3 xaga midig ayay ka xigtaa -5 , sidaa awgeed -3 wey ka weyn tahay -5 .

Maxaa sababay tirooyinka waaweyn ee taban in ay ka yaraadaan kuwa yar ee taban?

Waxaad u isticmaashaa tirooyinka waaweyn ee togan in ay macnaheedu tahay qiimahoodu in uu weyn yahay, tirada weyn, midda badan, ama sare, ama dheer, ama qaaliga ah ama wax walba oy tiradu u taagantahayba.

Markaan u soo kacno tirooyinka taban, waa in aad xusuusnaataa Markey gododku weynaadaan, tiradu wey yaraataa (sababto ah calaamada tabnaanta yaa tirada

horteeda ku qoran). Ka fakir tiradu waxay u taagan tahay, ka fakir qiimaheedu waxa uu yahay.

- ◆ Cadadka lacagta eed heshay wuu ka yar yahay inta badan eed amaahatayba.
- ◆ Heerkulku wuu sii yaraadaa, markii qabawgu sii bataba.
- ◆ Markii in badan aad qaadataba, wixii aad haysay wuu yaraadaa

Hawlgalka 4.4

Fiiri shaxdan soo socota waxay ku tusineysaa qiyaasta heerkulka celceliska ah ee sagaalka meerayaal dushooda.

Meere	Dhul	Jubitar	Marsi	Meerkury	Nebtune	Bulut o	Satarn	Yuranas	Fen
Cel-celiska heerkulka	8C°	-150C°	-37C°	179C°	-225C°	-236C°	-185C°	-214C°	453C°

Ku tax meerayaashan shaxdan hoose ado u habeynaya meeshooda ugu kulul ilaa meeshooda ugu qabaw.

Tusaale 2: -1 waxay ka weyn tahay -2 iyo waxay ka yar tahay 0 . Waxaynu u isticmaalnaa calaamada “ $>$ ” macno ahaan wey ka weyntahay iyo “ $<$ ” macno ahaan wey ka yartahay. Marka weedha sare waxaad u qori kartaa sida $-1 > -2$ iyo $-1 < 0$.

Dhammaan abiyoonaada xariiqa tirooyinka dushooda waxay ku habeysan yihiin hab korodh ka bilawda bidix ilaa midig.

Waxaad xusuusan tahay xariiqa tirooyinka korkiisa, socodkaada dhanka midig tiradu wey kordheysaa iyo socodkaada dhanka bidix tiradu wey naaquseysaa.

Tusaale 3: habee abiyoonaadan soo socda adoo ku bilaabay ka ugu yar, $-23, 17, -32, 2, -4, 0$.

Furfuris: ku bilaw adoo eegaya abiyooneyaalka taban sida ay marwalba uga yar yihiin abiyooneyaasha togan, ka bilaw abiyoonaaha taban (-32) kaas oo leh qiimaha ugu yar.

Raadi kan ku xiga ee ah abiyoonaaha taban ee ugu yar (-23) wada ilaa tirooyinka taban aad ka habeyneysid, markaa kadib ebarka iyo tirooyinka togan waxaa loo habeyni sidan soo socota $-32, -23, -4, 0, 2, 17$.

Tusaale 4: Abiyoonayaashan keebaa ka weyn -6 laakiin ka yar 4?

-8, -10, 5, -4, 0

Furfuris: Ku bilaw adoo raadinaya dhammaan abiyonada ka yar -6. waxaad heleysaa markaad eegto xariiqa tirada in -8 iyo -10 ay ka xigaan dhanka bidix -6. Marka ku xigta ka saar wax alla wixii ka weyn 4. Kaasi macnihiisu 5 ayaa ka baxeysa. Sidaa darteed, jawaabtu waxay noqon -4 iyo 0.

Laylis 4.2

1 Tilmaan abiyoonadan soo socda meesha ay kaga yaalaan xariiqa tirada ee hoose, kadib tax adoo ka bilaabaya kooda ugu yar ilaa kooda ugu weyn. 5, -3, 6, -5, 3, -8, 8, -9



Jaantuska 4.8

2 Qor lidka mid walba oo ka mid ah abiyoonayaashan soo socda

b 16 **t** -7 **j** -13 **x** 18

3 Qor mid walba oo ka mid ah abiyoonayaashan urursan adoo u habeynaya (u taxaya, dhanka midka ugu yar ilaa midka ugu weyn).

b 8, -9, -12, 0, -11, 15, 12

t 17, -5, -7, -12, 0, 4, -13, 6

j -28, 27, -30, 3, -31, -33

4 Qor mid walba oo ka mid ah abiyoonadan urursan adoo ka bilaabaya midka ugu yar ilaa midka ugu yar.

b -21, 16, -8, 14, 21, 0, 22

t 24, 14, -14, -22, 10, 0, -20

j 11, -1, 10, -13, -19, -9, 9

4.3 ISUGEYNTA IYO KALA GOYNTA ABYOONEYAASHA

Qeybtan waxaad ku baran doontaa sida la isugu daro iyo sida loo kala jaro abiyoonayaasha ama ha ahaadaan isku calaamad ama ha kala duwanaadaan.

Waxaadna kalood arki doontaa faraqa u dhaxeeya calaamada ku darta iyo calaamada “ka jarta”, calaamada “taban” iyo calaamad “togan”.

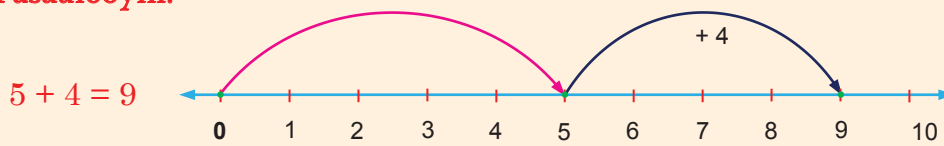
Hawlgalka 4.5

- 1 Ka soo qaad waxaad rabtaa in aad iibsatid buug qiimihiisu yahay 63 riyaal. Haddii aad haysid 35 riyaal kali ah, imisa lacag oo dheeraad ah yaad u baahan tahay si aad u gadatid buuga?
- 2 Maxay tahay in lagu daro 44 si aad u heshid wadarta 73?
- 3 Diwaanka la hayey ee heerkulkii ugu sareeyey ee Debre Birhan sannadii 1997 wuxuu ahaa 27 digrii, heerkii ugu hooseeyey ee la diiwaan galiyeyna wuxuu ahaa -8 digrii waa maxay faraqa heerkulka sare iyo ka ugu hooseeyey?

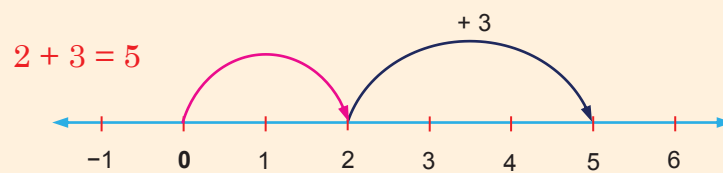
Laga yaabo xariiqa tirada in uu yahay wadada u fudud muuqaalkana leh ee loogu isticmaalo isku darka iyo kala jarka abyoonayaasha.

Sidaad ku soo aragtay kor iyada oo dhanka midig loo raaco xariiqa tirada waa isku dar.

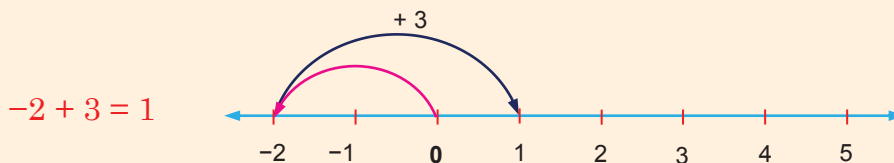
Tusaalooyin:



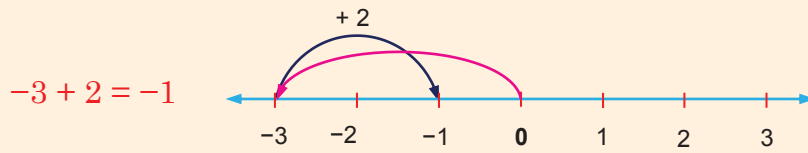
Jaantuska 4.9



Jaantuska 4.10

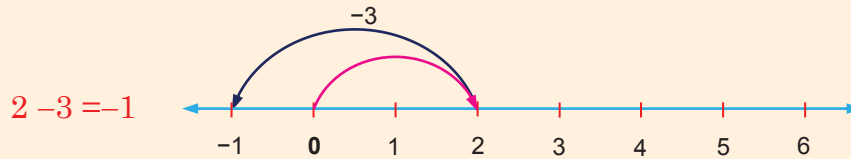


Jaantuska 4.11

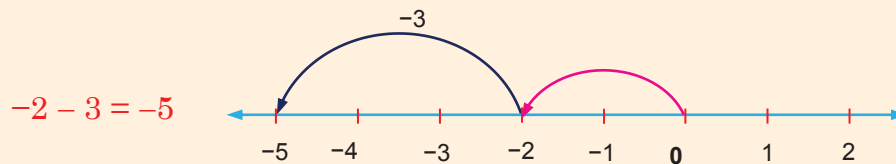


Jaantuska 4.12

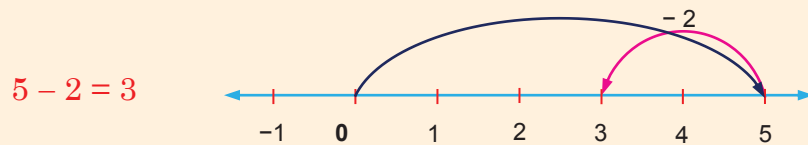
Dhanka kale xariiqa tirada oo loo raaco dhanka bidix waa ka jar sida hoos lagu tusay.



Jaantuska 4.13



Jaantuska 4.14



Jaantuska 4.15

I. Iskudarka Abiyoona Togan

Iskudarka tirooyinka togan waa iskudarka caadiga ah.

Tusaale 1: $3 + 5 = 8$, run ahaantii waxaa la dhihi saddex togan lagu daray 5 togan waxay la mid tahay 8.

Waxaad u qori kartaa sida $(+3) + (+5) = (+8)$.

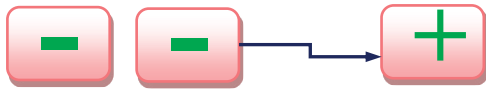
II. Kala jarida Abyoonaha togan

Kala jarida abyoonayaasha togan waa kala jarida caadiga ah.

Tusaale 2: $9 - 6 = 3$, run ahaantii waxaa loo akhriin “9 togan laga jaray 6 togan waxay la mid tahay 3 togan”, waxaa loo qori karaa sida

$(+9) - (+6) = (+3)$ laakiin maxaa dhacaya haddii aan haysano tirooyin taban?

Tusaale ahaan, waa maxay $6 - (-3)$?



Abiyoone laga jaray tiro taban waxay lamid tahay abiyoonehii oo lagu daray tabanaha lidkiisa.

Hawlgalka 4.6

Xisaabi kuwan soo socda

b $3 - 3$ **t** $5 - 2$ **j** $4 - 7$

Ogow:

- i** laba Abyoone oo kasta oo b iyo t ah, haddii $b = t$, dabadeed $b - t = 0$
- ii** laba Abyoone oo kasta oo b iyo t ah, haddii $b > t$, dabadeed $b - t > 0$
- iii** laba Abyoone oo kasta oo b iyo t , ah haddii $b < t$, dabadeed $b - t < 0$
- iv** Abyoone kasta oo b , ah
 - ♦ $b + 1$ waxaa la yidhaa ka dambeeyaha b .
 - ♦ $b - 1$ waxaa la yidhaa ka horeeyaha b .

Tusaale 2:

- i** Ka dambeeyahs 4 waa 5, waayo $4 + 1 = 5$ ka horeeyaha 4na waa 2 waayo $4 - 1 = 3$
- ii** Ka dambeeyaha -6 waa -5 waayo $-6 + 1 = -5$, ka horeeyu huna waa -7 waayo $-6 - 1 = -7$

Tusaale 3: Ruqiya waa gabadh dhexdhaxaad ah, waxay dhigataa fasalka 6aad. Waxay noqon kartaa gabadh liidata oo anshax leh ama fiican. Sidaa darteed, waalidka Ruqiya waxay dhaheen; “haddii aad fiicnaatid waxaanu kuugu dari 3 buundo (+3). Haddii aad marjo noqotidna waxaanu kaaqaadi saddex dhibcood. Marka aad gaadhid 30 dhibcood waxaad heli abaalmarin.

Ruqiya waxay maalinkii ku bilawday iyada oo haysata 9 dhibcood.

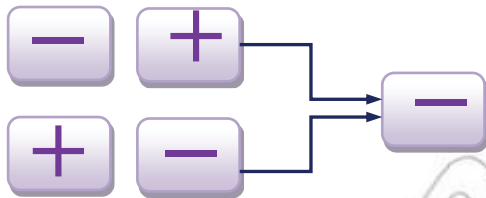
Buundooyinka Ruqiya 9 $9 - 3 = 6$ Maqabsoona $6 + 3 = 9$	Ruqiya hooyadeed waxay baadhay in caano daateen kadib waxay ka qaaday saddex dhibcood; $9 - 3 = 6$ Kadib Aabaa xaqiijiyay in uu isagu daadiyay caanaha. Kadib hooyaa xisaabisay: $6 + 3 = 9$
---	---

Maxaa dhacaya haddii la isku daro ama la kala jaro abiyoonayaasha taban iyo kuwa togan?

Waxaa kaloo jiri kara su'aalahan;

Waa maxay $6 + (-3)$? ama waa maxay $6 - (+3)$?

Run ahaantii waa isku mid; labaduba waa kala jarid.



Kagoynta tiro togan ama ku darista tiro Tabani waa kalajarid.

Buundooyinkii Ruqiya:12

$$12 + 3 = 15$$

Ma'qabsoomo! (mafuliqn)

$$15 - (+3) = 12$$

$$+3 \ 12 +(+3) = 15$$

$$-3 \ 12 +(-3) = 12$$

Maalmo yar kadib, Ruqiya waxay haysataa 12 dhibcood. Hooyo waxay ku biirisay 3 dhibcood sababtoo ah qolka Ruqiya waa nadiif.

Aabo wuxuu yidhi “qolkaa anaa nadiifiyay” wuxuuna qoray “ma qabsoono”.

- ♦ Hooyo waxay xisaabisay:
 $15 - (+3) = 12$
 Aabo wuxuu arkay Ruqiya oo baraarkii meydhaysa, wuxuuna qoray “+3”.
- ♦ Hooyo waxay xisaabisay:
 $12 +(+3) = 15$
 Ruqiya waxay dhagax ku xoortay daaqada
 Aabo wuxuu qoray “-3”.
- ♦ Hooyo waxay xisaabisay
 $15 + (-3) = 12$

Fiiri natijada labadaba

“ $15 - (+3)$ ” iyo “ $15 + (-3)$ ” waa 12 kaas oo ah $15 - 3$.

Sidaa darteed, wax dhib ah ma laha hadaad kala jartid dhibco togan ama isugeysid dhibco taban, waxaad tahay mid dhibco waayaya (luminaya).

Hadda, halkan waxaa ah xeerar

Xeer	Tusaale	
Labadii calaamadood ee isku eeg waxay yeeshaan calaamad togan.	$+(+) = +$	$3 + (+2) = 3 + 2 = 5$
	$-(-) = +$	$6 - (-3) = 6 + 3 = 9$
Labadii calaamadood eek ala duwan waxay yeeshaan calaamad taban.	$+(-) = -$	$7 + (-2) = 7 - 2 = 5$
	$- (+) = -$	$8 - (+2) = 8 - 2 = 6$

Tusaale 4: waa maxay $5 + (-2)$?

Furfuris: Inaga oo ka duuleyna kor: $+ (-)$ waxay noqotaa calaamad taban.

$$5 + (-2) = 5 - 2 = 3$$

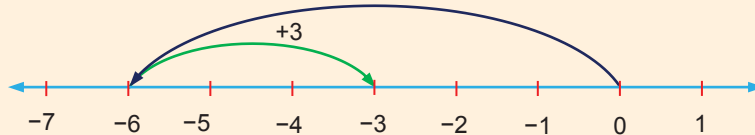
$$5 + (-2) = 3$$

Tusaale 5: Waa maxay $-6 + (+3)$?

Furfuris: Xagga sare waxan ku aragnay in $+(+)$ ay noqonayso calaamad togan $-6 + (+3) = -6 + 3$

Ka bilow -6 xariiqda tirada dusheeda, u soco dhinaca midigta 3, waxaad dul-joogsan -3 .

Furfuris: $-6 + (+3) = -3$.



Jaantuska 4.16

Eeg calaamada '+' waxaa loo isticmaalaa siyaabo kala duwan

- i Markii lagu hordhigo tiro waxay tilmaantaa tiradu in ay togan tahay. Sidaa darteed, $+5$ macnaheedu waxaa weeye 5 waa togan.
- ii Markii la dhex dhigo labo tiro dhexdood, macnaheedu in la isku daro tirooyinka. Sidaa awgeed, $3 + 4 = 7$, loona akhriyo sida 3 lagu daray 4.

Sidoo kale calaamada '-' waxaa loo isticmaalaa siyaabo kala duwan.

- i Marka lagu hordhigo tiro, macnaheedu tiradu waa taban. Sidaa darteed, -4 macnaheedu waxay tahay tirada 4 waa taban.
- ii Markii lagu dhex qoro labo tiro dhexdood, waxay tilmaameysaa tirooyinka in lakala jaro. Sidaa darteed, $2 - 9 = -7$, waxaa loo akhriyaa 9 laga jaray 2.

Tirada 0 waxay leedahay dabecadahan soo socda ee waxtarka leh.

- i Tiro walba oo abiyoona a , $a + 0 = a$, tirada 0 waxaa loogu yeedhaa xubinka asalmadoorshaha isugeynta.
- ii Tiro walba oo abiyoona a , waxaa jira abiyoone $-a$, kaas oo $a + -a = 0$. Tirada $-a$ waxaa loogu yeedhaa lidka a .

Tusaale 6:

- i $-5 + 5 = 0$, sidaa darteed, -5 waa lidka 5, sidoo kale 5 waa lidka -5 .
- ii $12 + (-12) = 0$, 12 waa lidka -12 , sidoo kale -12 waa lidka 12.

F.G: Su'aasha $9 - 6$ waxay lamacno tahay $9 + (-6)$, sababtoo ah $9 - 6 = 3$ iyo waliba

$9 + (-6) = 3$, waxaa la mid ah, $13 - 7 = 13 + (-7) = 6$, tan markaa waxay kuu horseedi fakhir ah su'aasha kala goynta abiyoona waxaa kaloo la fakhir ay tahay su'aalaha isugeynta.

Sidaa awgeed, kala jarka labo abiyoone waxay la mid tahay isku darka lidka abiyoonaaha 2aad uu ku yahay abiyoonaaha 1^{aad}.

Haddii a iyo b ay yihiin labo abiyoone, si aan b uga jarno a , waxaynu badaleynaa calaamad b markaasaanu ku dari a .

Taas oo noqon,

i $a - b = a + (-b)$

ii $a - (-6) = a + b$

Laylis 4.3

- 1** U qor tirooyinkan ururo ee soo socda hab taxa ay naaqusayaan

b -9, -4, 4, 0, -3, 8	t -7, -11, -3, -5, 1, 0, 2, 6
j 3, 12, -5, -3, 3, 8, 6	x 0, 7, -5, -7, 2, 10, -3, -6
- 2** Isu – gee midkasta oo ka mid ah kuwan soo socda

b (+3) + (+3)	t (-5) + (+7)	j (+8) + (-8)
x (+6) + (-9)	kh (-7) + (-7)	d (-9) + (-8) + (+10)
- 3** Kala midkasta oo ka mid ah kuwan soo socda

b 18 laga jaray 9	t 9 laga jaray 18
j 6 laga jaray 14	x -12 laga jaray -21
kh -21 laga jaray -12	d -15 laga jaray -8
- 4** Raadi ka horeeyaha iyo ka dambeeyaha midkasta ooka mid ah Abyooneyaashan

b ___ 3 ___	t ___ -9 ___	j ___ 19 ___
x ___ -1 ___	kh ___ -10 ___	d ___ 0 ___
- 5** Isticmaal xariiqda tirada si aad si sax ah u dhigtid calaamada $>$ (ka weyn), $<$ (ka yar) Ama = (lamid) laba lammaaneyaal kasta oo tirooyinkan soo socda ah.

b 10 ___ 14	t -3 ___ -5	j 6 ___ -4
x -15 ___ 13	kh -10 ___ -10	d 76 ___ 67
r -37 ___ -73	s -46 ___ -85	sh -2 ___ -202
- 6** Raadi qiimaha kuwan soo socda

b (-23) + (-12)	t (-3) - 7 - (-19)
j 12 + (-33) - 3	x -42 - (21) + 5
kh 8 - 5 - 6	d 24 - (-24)
- 7** Ku buuxi meelaha bannaan “ $>$ ” ama “ $<$ ”

b -8 ___ 8	t -17 ___ 71
j -63 ___ -36	x -(-8) ___ 0
kh (-17) - 17 ___ 17 - (-17)	

☞ Hubin

☞ Abiyoonada

☞ Hab naaquska

☞ Isbarbardhiga abiyoonada

☞ Iskudarka lidka

☞ Ka horeeyaha

☞ Lidka

☞ Tirooyinka togan

☞ Hab kororka

☞ Habeynta abiyoonada

☞ Iskudarka abiyoonada

☞ Ka danbeeyaha

☞ Kala goynta abiyoonaha

☞ Tirooyinka taban

☞ Xubinka asalmadoorshaha

Soo Koobidda Cutubka

- 1 Ururka tirooyinka ee ka kooban tirooyinka idil iyo kuwa taban waxaa loogu yeedhaa ururka abyoonada. Calaamadiisu waa \mathbb{Z} oo loo qoraa $\mathbb{Z} = \{\dots, 3, -2, -1, 0, 1, 2, 3, \dots\}$.
- 2 Xariiqa tirada labada jahooyinba si aan xad lahayn buu ugu socdaa. Midaas oo lagugu tuso falaadhaha kaga yaala labada cidhif.
- 3 Tirooyinka idil ee ka wayn ebarka waxaa loogu yeedhaa abiyoonada togan. Tirooyinka oo kaga yaala xariiqa tirada dhanka midig ebarka.
- 4 Tirooyinka ka yar ebarka waxaa ladhahaa abiyoonada taban. Tirooyinkaas waxay xariiqa tirada kaga yaalaan dhinaca bidix ee ebarka.
- 5 Abiyoonaha ebarku waa dhex-dhexaad mid togan iyo mid taban toona ma aha.
- 6 Calaamada abiyoonaha waa togan ama taban ($-$), waxaan ka ahayn ebar, taas oon lahayn wax calaamad ah.

- 7 Labadii abiyoone waxay isku yihiin lid hadey fogaantooda ay u jiraan ebarka ay isku mid tahay laakiin ay ku kala yaalaan labada dhinac ee xariiqda tirada. Mid wuxuu yeelan calaamad taban kan kalana calaamad togan.
- 8 Isticmaal xariiqda tirada marka aad iskudareysid iyo marka aad kala jareysidba.
- ◆ Iskudar tirooyinka abiyoonaada togan ado xariiqda tirada u raacaya dhanka midig.
 - ◆ Iskudar tirooyinada abiyoonaada taban ado xariiqda tirada u raacaya dhanka bidix.
 - ◆ Kaljar abiyoonaayaasha ado ku daraya lidkiisa.
- 9 Labo walba oo abiyoonaada a iyo b haddii
- ◆ $a = b$, kadib $a - b = 0$
 - ◆ $a > b$, kadib $a - b > 0$
 - ◆ $a < b$, kadib $a - b < 0$
- 10 abiyoone kasta oo ah a
- $a + 1$ waxaa loogu yeedhaa ka dambeeyah a .
- $a - 1$ waxaa loogu yeedhaa ka horeeyah a .

? Layliska Nakhtiinka Cutubka 4^{aad}

- 1 Heerkulka Addis-Ababa dhexdeedu waa 22°C sentigiraydh iyo kaa dhebrasayd gudaheeda ahna waa -9°C selshiyas. Waa maxay faraaqa u dhaxeeya heerkuladaa?
- 2 Gujis ayaa wuxuu ku sugnaa 137 mitir oo ka hooseeysa heerka badda, hadii uu sii dago 91 mitir, waa maxay meesha cusub ee uu tagay?

3 Xaliimo ayaa waxay amaahisay waardiyaheedii lacag 33 riyaal ah haddii ay hooyadeed ka bixiso 15 riyaal waardiyaaha, Imisa lacag ah ayaa ku hadhay waardiyaahii?

4 Qor tirada u taagan xaalad kasta.

Xaalad	Qiimaha tirada
9 dhigrii oo ka sareysa ebar	
54 mitir oo ka sareysa heerka badda	
12 halbeeg oo kaga taala dhanka bidix xariiq tirada	
860 riyaal ood ku keydsatid bangiga	
45 riyaal ood heshid	
Lidka 181,	
8 halbeeg oo dhanka bidix ee 1 kagayaala xariiq tirada.	

5 Qor lidka mid walba oo ka mid ah abyooneyaashan soo socda:
14, 91, -65, 3, -12, 0, -23.

6 Qor mid walba oo ka mid ah abyooneyaashan soo socda adoo ka bilaabaya kooda ugu yar ilaa ka ugu weyn.

b 34, -37, 58, 16, -43, 36, -85

t 29, 19, 16, -22, -4, -10, -27, 0, -29

j 12, -14, 16, -18, -22, -41, -8, 20

x 48, 46, 41, -13, -31, -35, -53.

7 Qor mid walba oo ka mid ah abyooneyaashan soo socda adoo ka bilaabaya kooda ugu weyn ilaa ka ugu yar.

- b** 15, -27, 11, -41, 33, -19, 77,
t -1, -4, -13, 42, 29, 72, 46, -43
j 81, -63, -17, 26, 31, -5, -69
x -34, -45, -56, 55, 61, 9, 53, 40, 33.

8 Heerkulka xiliga hadhgalka karanta wuxuu ahaa 8° sentigiraydh. Badhtamaha habeenka, heerkulku wuxuu hoos u dhacay 11° sentigiraydh. Muxuu ahaa heerkulka saqda dhexe ee habeenkaa?

9 Iskudar kuwan soo socda

- b** $-5 + 47$ **t** $27 + 14$ **j** $18 + -45$
x $-47 + -44$ **kh** $-23 + 32$ **d** $-1 + 59$

10 Kala jar kuwan soo socda

- b** $-25 - 47$ **t** $44 - 14$ **j** $-16 - (-61)$
x $-71 - 42$ **kh** $34 + -17$ **d** $-1 - 49$

11 Raadi tirada maqan

- b** $28 + \underline{\hspace{1cm}} = 43$ **t** $41 \underline{\hspace{1cm}} - 41$ **j** $-13 \underline{\hspace{1cm}} - 31$
x $-(-2) \underline{\hspace{1cm}} 2$ **kh** $6 - (-6) \underline{\hspace{1cm}} -6 - (-6)$
d $4 + (-4) \underline{\hspace{1cm}} 0$

12 Ku buuxi meelaha banana calaamadahan “>”, ama “<”

- b** $-9 \underline{\hspace{1cm}} 6$ **t** $-17 \underline{\hspace{1cm}} 71$ **j** $-63 \underline{\hspace{1cm}} -36$
x $-(-8) \underline{\hspace{1cm}} 0$ **kh** $(-17) - 17 \underline{\hspace{1cm}} 17 - (-17)$.

13 Faadumo waxay leedahay lo’ midabkeedu kala yihiin 12 casaan ah, 8 madaw ah iyo 6 cadaan ah

b Raadi wadarta tirada lo’da ay leedahay faadumo?

t Imisa sac yaana ahayn madaw?

14 Ilbaxnimadii boqortooyadii Ruum waxay bilaabatay 509 Ciise ka hor waxayna dhamaatay 476 Ciise kadib. Imisa sano ayay boqortooyadii Room ay jirtay?