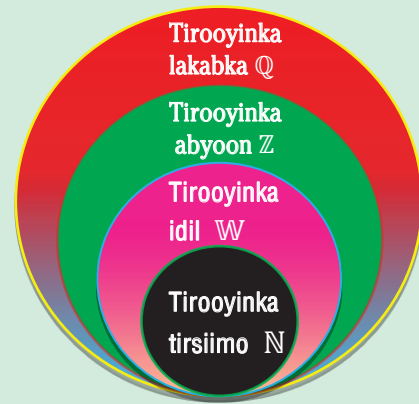


CUTUBKA 1^{AAD}



TIROOYINKA LAKAB

Ujeedooyinka cutubka

Cutubkani marka uu dhamaado kadib, waxaad awood u yeelan doontaa inaad:

- *Qeexdo, una muujisidna tirooyinka lakab si jajab ahaana.*
- *Tusto xidhiidhka ka dhexeeya W, Z iyo Q*
- *Qorto siday u kala horeeyaan tirooyinka lakab*
- *Ku xisaabiso tirooyinka lakab*

Tusmooyinka muhiimka ah

1.1 Nuxurka Tirooyinka Lakab

1.2 Isbarbardhigga Iyo Horsanaanta Tirooyinka Lakab

1.3 Xisaabfalada Tirooyinka Lakab

Ereyada Muhiimka ah

Koobista Cutubka

Laylis Guud

HORDHAC

Fasaladii hore waxaad ku soo baratay abyooneyaasha iyo jajabyada, siday doonto hanoqoto ee abyooneyaashu ma faahfaahin karaan dhamaan xaaladaha nolosha dhabta ah.

Tusaale ahaan:-

Dhererka arday ayaa wuxuu noqon karaa $\frac{1}{2}$ mitir ama qiimaha buuga wax lagu qoro ayaa suurogal ah inuu noqdo Birr 3.25. Si loo qeexo xadiyadan ayaa waxaad u baahan tahay in jajabyo loo tibaaxi karo qaybta abyooneyaasha $\frac{a}{b}$ oo $b \neq 0$.

Cutubkani ayaad ku baran doontaan nuxurada tirooyinka lakab, isbarbardhigga iyo horsanaanta tirooyinka lakab iyo xisaabfalada tirooyinka lakab.

1.1 NUXURKA TIROOYINKA LAKAB

1.1.1 B Naqtiinka Ururka Tirooyinka Abyoone

Xisaab falada, waxaad kusoo baratay inaad ku furfurto masalooyinka xaqiiqada nolosha ee ku lug leh ku shaqeynta tirooyinka. Fiiri ururada tirooyinka muhiimka ah qaarkood. Tirooyinka tirsiimo waa dhammaan tirooyinka lagu tirsado ee 1, 2, 3, 4, . . . Ururka tirooyinka tirsiimo waxaa loo qoraasida.

$$\mathbb{N} = \{1, 2, 3, 4, \dots\}$$

Tirooyinka idil waa tirooyinka tirsiimo oo u eber lajiro. Ururka tirooyinka idil waxaa u taagnaada.

$$\mathbb{W} = \{0, 1, 2, 3, 4, \dots\}$$

Intaynaan qeexin ururka tirooyinka lakab, aan ku naqtiino nuxurka abyoone yaasha hawlgal ka soo socda dhexdiisa.

Hawlgalka 1.1

- 1 sharax mid kasta kuwa soo socda

b ururka tirooyinka idil	t ururka tirooyinka abyoone
---------------------------------	------------------------------------
- 2 ka jawaab mid kasta kuwa soo socda

b ma sheegi kartaa abyoone aan ahayn tiro idil?	t ma sheegi kartaa tiro aan ahayn abyoone?
--	---

- 3** Ku muuji abyoonyaasha soo socda xariiq tiro korkeed. $-4, -3, -2, 0, 1, 2, 3, 4$.
- 4** U kala saar mid kasta tirooyinka soo socda tirooyin idil, abyooneyaal ama midnaba. $3, \frac{1}{5}, -5, 2.5, \frac{2}{3}, -3.5, \frac{-1}{5}, 100, 0, \frac{-18}{6}$
- 5** ka soo qaad in n tahay tiro idil kolkaa tax qiimayaasha doorsoomaha u taagnaan karo xaalad walba
- | | |
|-------------------|-------------------------|
| b $n < 1$ | t $3 \leq n < 9$ |
| j $n > 10$ | x $17 < n < 27$ |
- 6** Ma jirtaa tiro tirsiiimo ugu yar? Haday jirto waa tee?
- 7** Ma jirtaa tiro ugu yar tirooyinka idil? Haddii ay jirto waa tee?
- 8** Miyey jirtaa tiro tirsiiimo ugu wayni?

Qeex 1:1: Ururka tirooyinka ka kooban, ururka tirooyinka tirsiiimo, lidkooda iyo 0 ayaa loo yaqaanaa ururka Abyooneyaasha. Waxana loo qoraa

$$\mathbb{Z} = \{\dots, -3, -2, -1, 0, 1, 2, 3, 4, \dots\}$$

$$\mathbb{N} = \{1, 2, 3, \dots\}$$
 ururka tirooyinka tirsiiimo

$$\mathbb{W} = \{0, 1, 2, 3, \dots\}$$
 ururka tirooyinka idil

$$\mathbb{Z} = \{\dots, -3, -2, -1, 0, 1, 2, 3, \dots\}$$
 ururka abyoonyaasha .

Haddaba waxan helaynaa $\mathbb{N} \subseteq \mathbb{W} \subseteq \mathbb{Z}$

Xusuus: Hawl galka 1.1 iyo qeexda 1.1 ee sare waxaad ku soo koobi kartaa:

- i** Ururka tirooyinka tirsiiimo waxay ku jiraan ururka tirooyinka idil
- ii** Ururka tirooyinka idil wuxu ku jiraa ururka Abyoonyaasha.

Ururka abyoonyaasha waxaa lagu muujin karaa xariiqda tirada korkeeda sida hoos lagu tusay:-



Jaan. 1.1

Xusuus: Siinta laba abyoone kasta oo xariiq tiro korkeed ah tirada midigta xigta ayaa mar kasta wayn, ma khusayso summadooda.

Tusaale 1: Adeegso xariiq tiro korkeed oo ku buuxi meelaha banaan summadda dheeliga < ama >

b 5 ___ 0

t -5 ___ -3

j -2 ___ -4

x -3 ___ 1

Furfuris: Ugu horayn sawir xariiqda tirada sida uu ku tusayo jaantuska 1.2



Jaan. 1.2

b $5 > 0$ waayo 5 midig ayey ka xigtaa 0

t $-5 < -3$ waayo -5 bidix ayey ka xigtaa -3

j $-2 > -4$ waayo -2 midig ayey ka xigtaa -4

x $-3 < 1$ waayo -3 bidix ayey ka xigtaa 1

Ogow markii aad uga dhaqaaqdid tiro xariiq dusheeda min bidix ilaa midig qiimeyaasha tirooyinka waxaa kordhi doona tirada xariiqda dusheeda.

1.1.1 T Ururka Tirooyinka Lakab

Fasalkii 6^{aad} waxaad ku soo shaqeyseen jajabyada. Eegga ka hor qeexista ururka tirooyinka lakab waxaa lagaa rabaa inaad ka shaqaysid hawlgalkan soo socda.

Hawlgal 1.2

1 U qor tirooyinka soo socda saansaanta $\frac{a}{b}$

b 3.25

t $1\frac{1}{2}$

j -1.6

x 4

kh $\frac{1}{2} + 0.6$

2 Ma u qori kartaa abyoono kasta saansaanta $\frac{a}{b}$

3 Fiiri saddex xagalada soo socda



Jaan. 1.3

b jajab intee ah ayaa dhamaan saddexagalada hadheysan?

t jajab intee ah ayaan saddexagalada hadheysnayn

Tiro kastoo aad kula kulantay cutubkani waxaa loo qoran karaa jajab ahaan.

Tusaale ahaan, -3 waxa loo qori karaa $\frac{-3}{1}$, $3\frac{1}{8}$ waxa loo qori karaa $\frac{25}{8}$, -1.6 waxa

loo qori karaa $\frac{-8}{5}$ ama 2 oo aad u qori kartaa $\frac{2}{1}$

Tirooyinka sidan ah ayaa loo yaqaanaa tirooyin lakab. Magaca lakab waxaa looga jeedaa in tiro loo qori karo saamiga ama jajabka laba abyoone ah.

Qeex 1:2 Tiro lakab waa tirada loo qoran karo $\frac{a}{b}$; $b \neq 0$, halka a iyo b ay yihiin tirooyin abyoon. Ururka tirooyinka lakab oo ay u taagan tahay \mathbb{Q} , waxa loo qeexaa sida soo socota:

$$\mathbb{Q} = \left\{ \frac{a}{b}; b \neq 0, a, b \in \mathbb{Z} \right\}$$

Tusaale 2:

- b** Kuwa soo socdaa waa tusaalayaasha tirooyin lakab, $\frac{2}{3}, \frac{-3}{4}, \frac{23}{10}, 6$
- t** Abyoone kasta oo ah a waa tiro lakab maadaama a , loo qori karo sida $a = \frac{a}{1}$

OGOW: Ogoonaw shardiga in $b \neq 0$ gudaha qeexda tiroo lakabka $\frac{a}{b}$. Tani waxa loogu baahday si looga reebo qaybinta 0, oo aan macno lahayn. Xeerka in markasta la xusuusnaado ahi waa: **WALIGAA HA U QAYBIN EBER.**

1.1.2 Ku Meelaynta Tiro Lakab Xariiq Tiro Korkeed

Fasaladdii hore waxaad ku soo aragteen sida loogu muujiyo abyooneyaasha xariiqda tirada korkeeda. Halkani waxaad ku arki doontaa sida loogu meeleeeyo tirooyinka lakab xariiqda tirada korkeeda.

Hawlgal 1.3

1 Fiiri xariiqda tirada



Jaan. 1.4

U qaybi xariijinta OA

- b** laba qaybood oo isle'eg **t** saddex qaybood oo isle'eg
j shan qaybood oo isle'eg **x** sagaal qaybood oo isle'eg

2 Xariijimaha aad qaybqaybisay korkooda ku qor (muuji) tirooyinka lakab ee soo socda.

- b** $\frac{1}{2}$ **t** $\frac{1}{3}, \frac{2}{3}$ **j** $\frac{2}{5}, \frac{3}{5}, \frac{5}{5}$ **x** $\frac{1}{9}, \frac{5}{9}, \frac{8}{9}$

3 Adigoo isticmaalaya tabaha waydiimaha **1** iyo **2** ku muuji tirooyinka lakab ee soo socda xariiqa tiro korkeed.

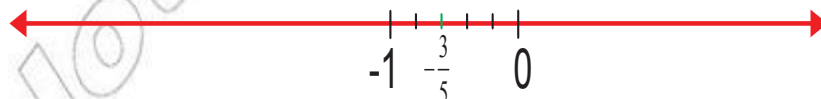
- b** $-\frac{1}{2}$ **t** $-\frac{3}{7}$ **j** $-\frac{7}{9}$

4 Ka doodda sida loogu meeleyo tiro lakabka $\frac{a}{b}$ xariiq tiro korkeed

hawlgalka kore waxaad ku aragtey sida loogu muujiyo jajab qumane xariiq tiro korkeed. Hadda aynu dhawro sida loogu muujiyo jajab qumane iyo jajab ma qumane labadaba xariiq tiro korkeed.

Tusaale 3: Ku qor $-\frac{3}{5}$ xariiq tiro korkeed

Furfuris: Xariijinta 0 iyo -1 inta u dhaxeysa u qaybi 5 qaybood oo isle'eg. Ka dib ku qor $-\frac{3}{5}$ xariijinta u dhaxaysa 0 iyo -1 sida hoos lagu tusay.



Jaan. 1.5

Tusaale 4: Ku qor $\frac{37}{11}$ xariiq tiro korkeed

Furfuris: U rog $\frac{37}{11}$ Tiro dhafan, taas oo ah $\frac{37}{11} = 3\frac{4}{11} = 3 + \frac{4}{11}$.

Kolka lagu muujinayo $3\frac{4}{11}$, u qaybi xariijinta u dhaxeysa 3 iyo 4 ee xariiqda tirada

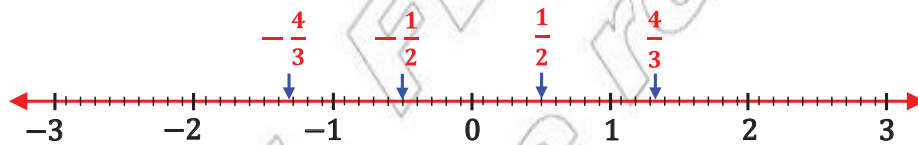
11 qaybood oo isle'eg. Ka dib $3\frac{4}{11}$ ku dhig xariijinta u dhaxaysa 3 iyo 4 korkeeda sida lagugu tusay hoos :-



Jaan. 1.6

Tirooyinka lakab waxa u taagnaan kara baraha xariiq tiro korkeed. Dib ugu celi in xariiq tiro tahay xariiq tiro jahaysan oo la kala siiyey jaho togan iyo jaha taban, xariiqdani korkeeda bar u door 0. Waxaan odhanaynaa barta 0waa unugga kolkaa baraha si isle'eg ayaa loogu calaamadeyn midigta unugga abyooneyaasha togan isla markaana abyooneyaasha taban bidixda unugga.

Tirooyinka lakab ee kale waxaa lagu dhigi abyooneyaasha inta u dhaxaysa.

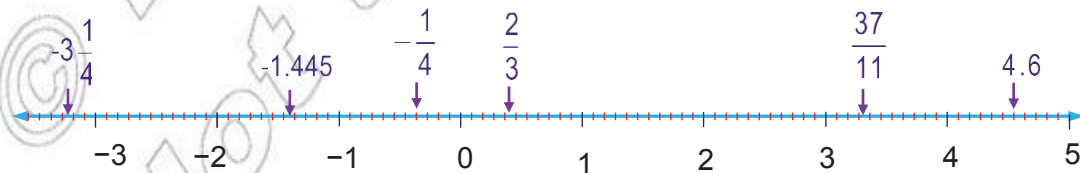


Jaan. 1.7

Tusaale 5: Ku muuji mid kasta tirooyinka lakab ee soo socda xariiq tiro korkeed

$\frac{2}{3}$, $-3\frac{1}{4}$, -1.445 , $\frac{37}{11}$, $\frac{-1}{4}$ iyo 4.6 .

Furfuris:



Jaan. 1.8

1.1.3 Xidhiidhada Ka Dhaxeeya W , Z iyo Q

Hawlgal 1.4

1	Tirooyinka idil ee soo socda mid kasta u qor saamiga laba abyoone.						
b	0	t	2	j	5		
x	8	kh	11	d	15		
2	Abyooneyaasha soo socda mid kasta u qor saamiga laba abyoone.						
b	-8	t	-3	j	-13	x	3
3	Tilmaan tirooyinkan soo socda kuwa aan ahayn abyooneyaal						
b	3	t	1	j	-5	x	0
kh	2.5	d	$-3\frac{1}{2}$	r	$\frac{33}{7}$	s	6.04

Falaqaynadii hore, waxaad ku soo aragtay tirooyinka idil in ay yihiin abyooneyaal islamarkaana abyooneyaashu ay yihiin tirooyin lakab.

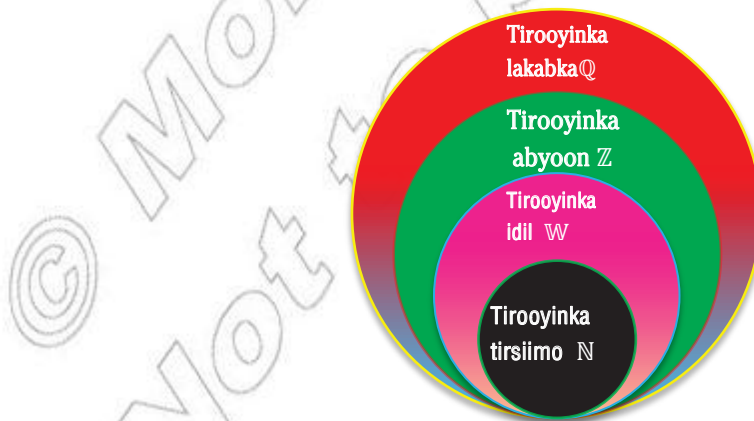
Haddaba, urrurka tirooyinka tirsiiimo N , tirooyinka idil W iyo abyooneyaasha Z waxay u yihiin Hormo urruro ururka tirooyinka lakab Q .

taas oo ah,

$$N \subseteq W, W \subseteq Z, Z \subseteq Q$$

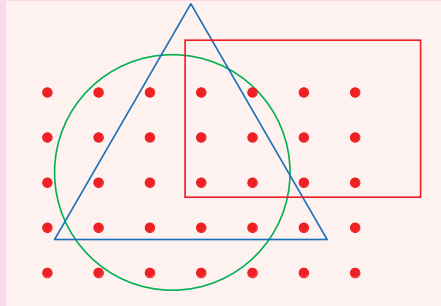
Sidoo kale, $N \subseteq Z, N \subseteq Q, W \subseteq Q$

Xidhiidhada ka dhexeeya ururka tirooyinka tirsiiimo N , tirooyinka idil W , abyooneyaasha Z iyo tirooyinka lakab ee Q ayaa waxa lagu tusi karaa u adeegsashada tusaha feyn ee sida soo socota:



Jaan. 1.9

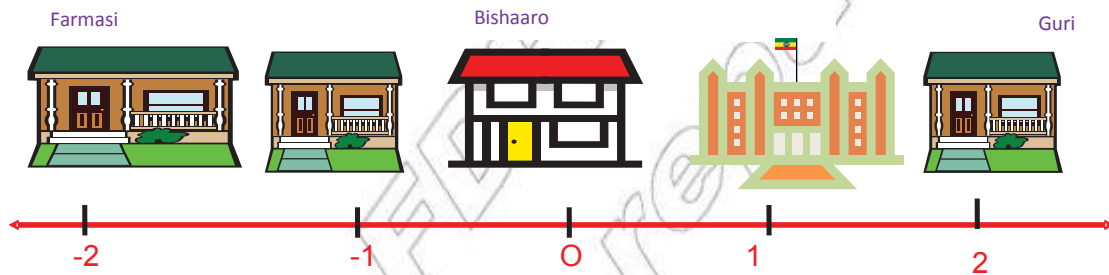
d gudaha saddexagalka, goobada iyo laydiga?



Jaan. 1.10

1.1.4 Qiimaha Sugaan Ee Tirooyinka Lakab

Waxaa muhiim ah mararka qaarkood in la ogaado fogaanta u dhaxaysa bar iyo unugga xariiq tiro korkeed, haseyeeshee jahadu malaha muhiimad. Fiiri sawirada soo socda oo dhinaca kaliya kaga wada yaal jidka wayn.

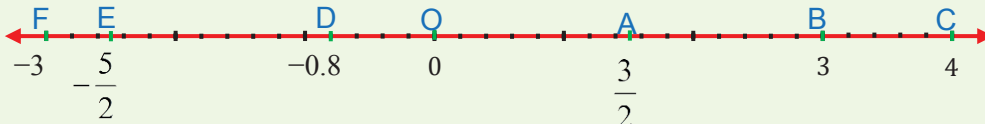


Jaan. 1.11

Farmasigu wuxuu ku yaal barta -2 , bishaaraduna unnugga, islamarkaa guriguna barta $+2$, fogaanta u dhaxaysa barta farmasigu yahay iyo bishaaradu waa 2 halbeeg, taas oo la mid ah fogaanta u dhaxaysa baraha bishaarada iyo gurigu ku yaalaan.

Hawlgal 1.5

1 Fiiri xariiq tireedka soo socda?



Jaan. 1.12

Adoo ku salaynaya xariiqda tirada ee kore, raadi fogaanta baraha soo socda ay u jiraan unnugga O.

b A **t** C **J** E **x** O **kh** F

- 2 Raadi baraha 8 halbeeg u jira 0
- 3 ka soo qaad a inay tahay tiro lakab kasta. Waa maxay qiimaha sugan ee a haddii
- i a tahay tiro lakab togan? ii a tahay tiro lakab taban?
- iii $a = 0$?
- 4 Tiro lakab kasta sidee ayaad ula barbardhigi o qiimaha sugan ee a ?

Summadda, qiimaha sugan loo qaato waa laba jiidimood oo qotoma, 11.

Haddaba $|-8|$ waxaa loo aqriyaa qiimaha sugan ee tabane 8

Tusaale 6: **b** qiimaha sugan ee +3 waa 3

t qiimaha sugan ee -8 waa 8

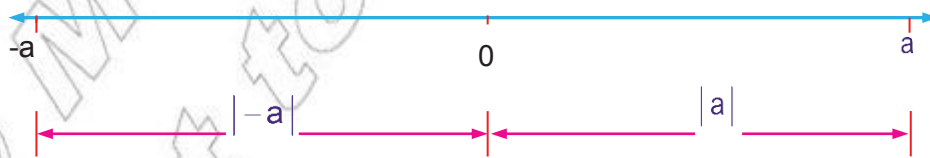
Ogow in haddii laba tirooyin lakab ay isku lid yihiin kolkaa waxay leeyihiin qiimo sugan oo isku mid ah, tusaale ahaan -12 iyo 12 waa isku lid. Haddaba

$|-12| = 12$ islamarkaana $|12| = 12$.

Qeex 1.2: Qiimaha sugan ee tiro lakabka a waa fogaanta u dhaxaysa o iyo barta a oo xariiqda tiro korkeeda. Waxaa loo qoraa $|a|$

$$\text{Sikooban, } |a| = \begin{cases} a, & \text{haddii } a \geq 0 \\ -a, & \text{haddii } a < 0 \end{cases}$$

Joomateri ahaan, qiimaha sugan ee tiro lakabka a waxaa loogu muujin karaa xariiqda tiro korkeed sida jaantuska 1.11 ee hoose uu ku tusayo.



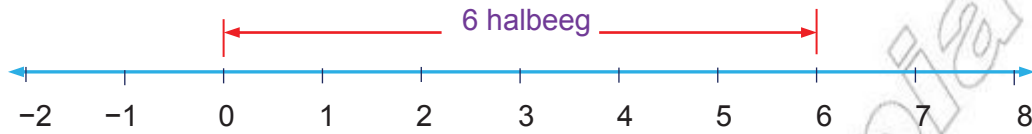
Jaan. 1.13

Tusaale 7: Raadi qiimaha sugan ee

b 6

t -6

Furfuris: **b**



Jaana. 1.14

Xariiqda korkeeda, 6 waa 6 halbeeg laga soo bilaabo 0. Tani oo la macno ah $|6|=6$.



Jaana. 1.15

Xariiqda tiro korkeeda -6 waa 6 halbeeg laga soo bilaabo 0. Tani waxay la macno tahay $|-6|=6$.

Tusaale 8: Raadi qiimaha sugan ee tirooyinka soo socda:-

b $\frac{-11}{23}$ **t** -1.05 **j** 0 **x** $-3\frac{1}{2}$

Furfuris: **b** $\left|\frac{-11}{23}\right| = \frac{11}{23}$ **t** $|-1.05| = 1.05$

j $|0| = 0$ **x** $\left|-3\frac{1}{2}\right| = 3\frac{1}{2}$

Tusaale 9: Furfur mid kasta kuwa soo socda.

b $|x|=12$ **t** $|x|=-5$ **j** $|3x|=15$

x $|x|=0$ **kh** $|x|=\frac{2}{5}$ **d** $|x|=1.2$

Furfuris: **b** $x=12$ ama $x=-12$

Hubin: $|12|=12$ islamarkaana $|-12|=12$

t dib u xusuuso in tiro x oo kasta, $|x| \geq 0$, sidaa darteed, ma jirto tiro x ah oo ay $|x|=-5$

j $3x=15$ ama $-3x=15$

Haddaba $x=5$ ama $x=-5$

x $x = 0$ waayo $|0| = 0$.

kh $x = -\frac{2}{5}$ ama $x = \frac{2}{5}$

Hubin: $\left|-\frac{2}{5}\right| = \frac{2}{5}$ iyo $\left|\frac{2}{5}\right| = \frac{2}{5}$

d $x = -1.2$ ama $x = 1.2$

Laylis 1.2

1 Soo saar dhamaan tirooyinka lakab ee qiimahooda sugan hoos lagu siiyey.

b 8 **t** 3.5 **j** $\frac{12}{17}$ **x** $4\frac{2}{5}$

2 Qiimee mid kasta kuwa soo socda.

b $\left|3\frac{1}{4}\right|$ **t** $\left|\frac{-24}{53}\right|$ **j** $|0|$ **x** $|-26|$
kh $|-201|$ **d** $|-12| + |-13|$ **r** $|-33| - |15|$
s $|-4 - 6|$

3 Guuri oo dhameystir shaxda.

x	-3	-1.5	$4\frac{1}{3}$	-1	-4.5	-0.8	$\frac{3}{2}$	$\frac{7}{12}$
$ x $								

4 Isbarbardhig tirooyinka lammaanaha ee soo socda tii oo lagu qorayo summadahan midkood: $<$, $>$ ama $=$

b $|12|$ _____ 12 **t** $|3|$ _____ $|4|$
j $|18-12|$ _____ $|18| - |12|$ **x** $|6-8|$ _____ $|6| - |4|$

5 U qor tirooyinka soo socda horsanaan ta ugu yar ilaa ugu wayn

$-|-4+3|, |-7|, -|-7|, |4-3|, \left|\frac{-7}{3}\right|$

6 Tibaax kasta ku qiimee qiimayaasha lagu siiyey.

b $4|x|, x = -5$ **t** $32 - |b|, b = -9$
j $15 + |2t|, t = 5$ **x** $|3m| + |n|, m = 5.2$ iyo $n = -4.5$

kh $6|m| - 3|r|$, $m = -1.2$ iyo $r = 0.5$

d $12|x| \cdot |y|$, $x = -1$ iyo $y = -2$

7 Soo saar furfurista isle'eg kasta

b $|x| = 24$

t $|x| = 0.4$

j $|-x| = \frac{1}{5}$

x $|x| = -12.05$

kh $|x| = -\left|\frac{-3}{4}\right|$

8 Ka dhig in a iyo b ay yihiin tirooyin lakab oo ay $|a| > |b|$, maxaad ka odhan kartaa a iyo b ?

9 Sii laba tirooyin lakab kasta x iyo y si ay u caddeeyso in

b $|x + y| \leq |x| + |y|$ **t** $|x - y| \geq |x| - |y|$

10 Haddii $x = -3$ islamarkaa $y = 5$, kalkaa qiimee.

b $|x + 2y|$ **t** $|3 - xy|$ **j** $\left|\frac{x}{y}\right|$ **x** $|x| |x - y|$

1.2 ISBARBARDHIGIDDA IYO HORSANAANTA TIROOYINKA LAKAB

Hawlaheena maalinle, waxaan caadi ahaan ugula kulanaa cabbiraado aan ku habooneyn abyoonaayaasha. Halkoodana aan uga isticmaalno jajabyo. Tusaale ahaan, kolkaan cabbiro dhererka arday fasalkiina ah waxay noqon karaan $1\frac{1}{4}$ mitir,

$1\frac{1}{2}$ mitir ama $1\frac{6}{10}$ mitir iyo sidaas oo kale. Haddaba, kolkaan isbarbardhigayno dhererka ardayda waxaan adeegsanaa weedhaha furan sida ka gaaban, ka dheer u dheer sida si loo tibaaxo dhererada si la mid ah waxaan horsiimo cabbirka dhererkooda u sameynaa inagoo isticmaaleyna summad xisaabeedka sida $>$, $<$ ama $=$. Eegga qaybtani waxaa lagaga hawlgalayaa nuxurka isbarbardhiga iyo horsanaanta tirooyinka lakab ee la ogyahay.

Hawlgal 1.6

1 Jajabyada soo socda kuwee ayaa u dhigma $\frac{3}{5}$?

b $\frac{4}{5}$

t $\frac{6}{10}$

j $\frac{9}{10}$

x $\frac{9}{15}$

2 U qor tirooyinka soo socda sida horsanaata ugu yar ilaa ta ugu wayn?

$$0, \frac{-1}{2}, \frac{1}{2}, 1, \frac{3}{5}, \frac{2}{5}, \frac{-2}{5}, \frac{-3}{5}$$

3 U qor laba jajab oo u dhigma mid kasta tirooyinka lakab ee soo socda?

$$\mathbf{b} \quad \frac{1}{4} \quad \mathbf{t} \quad \frac{2}{3} \quad \mathbf{j} \quad \frac{-4}{5} \quad \mathbf{x} \quad -1.5$$

4 Meel banaan kasta ku buuxi $<$, $>$ ama $=$ si ay weedh kasta u noqonto run.

$$\mathbf{b} \quad \frac{3}{8} \text{ — } \frac{5}{8} \quad \mathbf{t} \quad \frac{4}{5} \text{ — } \frac{4}{6} \quad \mathbf{j} \quad \frac{2}{3} \text{ — } \frac{3}{4} \quad \mathbf{x} \quad \frac{5}{7} \text{ — } \frac{20}{28}$$

Nuxurka ka yar ee tirooyinka lakab wuxuu la mid yahay tii abyooneyaasha. Haseyeeshee, halkan waxaan ula soconaynaa laba hab oo kala duwan isbarbardhigyadda laba tiro lakab iyadoo la adeegsasnayo xariiq tiro iyo u rogidda tirooyinka lakab oo la ina siiyey oo loo rogayo jajabyo isku dhigma oo leh hooseeye mid ah

Ogow: 1 Tirooyinka lakab ee a, b, c , iyo d , haddii $\frac{a}{b} = \frac{c}{d}$, kolkaa $ad = bc$.

2 Tirooyinka lakab ee a, b iyo c , $\frac{a}{b} = \frac{ac}{bc}$, $b \neq 0$, $c \neq 0$

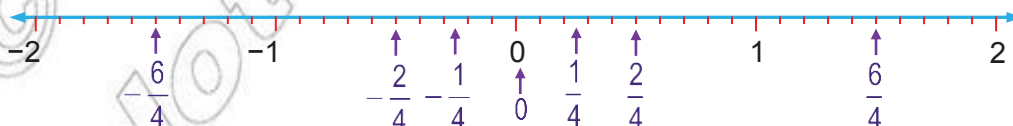
Tusaale 10: Isbarbardhigga iyo horsanaanta tirooyinka lakab ee soo socda u adeegso xariiq tiro.

$$\frac{-3}{2}, \frac{-1}{2}, 0, \frac{1}{4}, \frac{1}{2}, \frac{-1}{4}, \frac{3}{2}$$

Furfuris: Ugu horeen u qor jajab walba sida jajabyo isku dhigma oo leh hooseeye isku mid ah

$$\frac{-3}{2} = \frac{-6}{4}; \quad \frac{-1}{2} = \frac{-2}{4}; \quad 0 = \frac{0}{4}; \quad \text{iyo} \quad \frac{3}{2} = \frac{6}{4}$$

Eegga ku muuji tirooyinka lakab xariiq tiro korkeeda sida [jaan 1.16](#) ee hoose ku tusayo:



Jaan. 1.16

Haddaba, $\frac{-6}{4}$ bidix ayuu ka xigaa $\frac{-2}{4}$, kolkaa $\frac{-6}{4} < \frac{-2}{4}$.

$\frac{-2}{4}$ bidix ayuu ka xigaa $\frac{-1}{4}$, kolkaa $\frac{-2}{4} < \frac{-1}{4}$

$\frac{-1}{4}$ bidix ayuu ka xigaa 0, kolkaa $\frac{-1}{4} < 0$

0 bidix ayuu ka xigaa $\frac{1}{4}$ kolkaa $0 < \frac{1}{4}$.

$\frac{1}{4}$ bidix ayuu ka xigaa $\frac{2}{4}$, kolkaa $\frac{1}{4} < \frac{2}{4}$

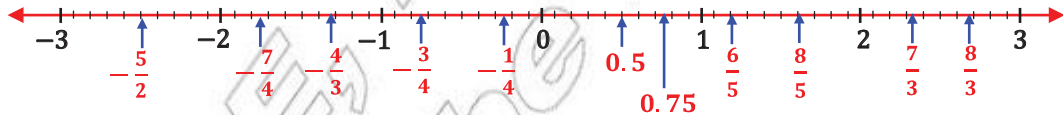
$\frac{2}{4}$ bidix ayuu ka xigaa $\frac{6}{4}$, kolkaa $\frac{2}{4} < \frac{6}{4}$.

Dhamaan jajabyadani waxay leeyihiin hooseeye mida oo ah 4 waxayna inoo keenaysaa in $-6 < -2 < -1 < 0 < 1 < 2 < 6$.

Sidaas darteed, tani waxay kuu hogaamineysaa gunaanadka in

$$\frac{-3}{2} < \frac{-1}{2} < -\frac{1}{4} < 0 < \frac{1}{4} < \frac{1}{2} < \frac{3}{2}$$

Tusaale 11: Fiiri xariiqda tirada korkeeda sida tirooyinka lakab loogu muujiyo ee u ku tusayo [jaan 1.17](#).



Jaana. 1.17

Haddaad fiiriso xariiqda tirarda, ee [jaan. 1.17](#) waxaadku arki kartaa in

$$0 < \frac{1}{2} < 0.75 < 1 < \frac{6}{5} < \frac{8}{5} < 2 < \frac{7}{3} < \frac{8}{3} < 3$$

Horsanaanta laba tiro lakab togan waxaa loo sameeyaa sida nidaamka in ta ugu yari ay ku dhaco bidixda midda ka wayn xariiqda tirada korkeeda.

$$\text{Si mida, } -3 < \frac{-5}{2} < -2 < \frac{-4}{3} < \frac{-3}{4} < -\frac{1}{2} < 0$$

Si la mid ah sida kore, waxaan u dhigi karnaa horsanaanta tirooyinka lakab ay leeyihiin si tirada lakabka u yar markasta ugu xigo bidix midkaka wayn oo waxaan u qori karnaa horsanaanta soo socota.

$$-3 < \frac{-5}{2} < -2 < \frac{-4}{3} < \frac{-3}{4} < -\frac{1}{2} < 0 < \frac{1}{2} < 0.75 < 1 < \frac{6}{5} < \frac{8}{5} < 2 < \frac{7}{5} < \frac{8}{3} < 3$$

Haddaba, sida guud, laba tiro lakab kastoo lagugu siiyey xariiq tiro korkeed, ta ku dhacda dhinaca midig ayaa ka wayn tirada kale ee bidixda ka xigta.

Taas waxay tahay, xariiq tiro korkeed, haddii X ay midig ka xigto Y kolkaa $X > Y$.

Tusaale 12: Isbarbardhig tirooyinka lakab ee soo socda iyagoo loo bedelayo jajabyo

isku dhigma oo leh hooseeye isku mid ah $\frac{2}{3}$, $\frac{5}{6}$ iyo $\frac{3}{4}$

Furfuris: $\frac{2}{3} = \frac{8}{12}$, $\frac{5}{6} = \frac{10}{12}$ and $\frac{3}{4} = \frac{9}{12}$

Waxaan arki karnaa in jajabyada $\frac{8}{12}$, $\frac{10}{12}$ iyo $\frac{9}{12}$ ay wadaagaan hooseeye

isku mida ah. Sida xigta, waxaan helaynaa: $\frac{8}{12} < \frac{9}{12} < \frac{10}{12}$ taas oo

malagalinaysa $\frac{2}{3} < \frac{3}{4} < \frac{5}{6}$.

Laylis 1.3

1 Tee ayaa galaysa $<$ ama $>$ laydiga?

b $-1.5 \square 0$

t $-20 \square -10$

j $-10 \square \frac{-15}{2}$

x $\frac{2}{3} \square \frac{3}{4}$

kh $\frac{-1}{2} \square \frac{-1}{3}$

d $2.13 \square 2.1333$

r $-0.5 \square \frac{-1}{2}$

s $\frac{-3}{4} \square -2$

sh $-0.9 \square 0.89$

dh $\left| \frac{-6}{5} \right| \square \frac{6}{5}$

2 Ku muuji ururka tirooyin kasta xariiq tiro u gaar ah korkeeda

b $-2, 0, 6$

t $0.5, 1.0, 2.5$

j $\frac{-3}{3}, \frac{2}{3}, -0.025, \frac{-7}{3}$

x $\frac{1}{4}, 1\frac{1}{2}, 3\frac{1}{4}, \frac{7}{8}$

kh $\frac{7}{8}, -1\frac{5}{6}, \frac{35}{14}, -5.156$

d $\frac{3}{5}, 1\frac{1}{8}, \frac{-17}{8}, 3.165$

r $\frac{3}{4}, -1\frac{1}{4}, \frac{32}{13}, -4.335$

s $\frac{2}{3}, -2\frac{1}{3}, \frac{15}{7}, 4.156$

3 U habee tirooyinka lakab ee soo socda horsanaan kordhaysa

b $-3.2, -9.0, -1, \frac{-1}{2}, 0.75$

t $2.3, -1.9, -0.9, -1.8, 0, 0.5$

j $\frac{-8}{5}, \frac{3}{2}, -1.8, -2, 0$

x $|-2|, -1.3, 1.3, 3\frac{1}{2}, 1\frac{1}{5}, 0, -1$

4 Isku barbar dhig tirooyinka lakab ee soo socda iyadoo loo bedelayo jajabyo isku dhigma oo leh hooseeye isku mid ah

b $\frac{5}{7}, \frac{6}{8}$

t $\frac{-2}{5}, \frac{-1}{5}, \frac{2}{3}, \frac{4}{5}$

j $\frac{3}{5}, \frac{4}{7}, \frac{9}{10}$

x $-1, -0.7, \frac{-3}{4}$

1.3 XISAABFALLADA TIROOYINKA LAKAB

Cutubka 4^{aad} ee fasalka lixaad, waxaad ku soo baratey, sida la isugu geeyo loona kala gooyo abyooneyaasha. Naqtiin ahaan u fiiri tusaalaha soo socda:-

Tusaale 1: Heerkulka figta saree buur wayn ayaa ahaa maalin 3°C. Kadibna maaintii labaad waxay hoos u dhacday 5°C. Waxaad u adeegsan kartaa muujinta heerkulka maalinle ee buurta xariiqda tiro sida [jaan. 1.18](#) ee hoose u u tusayo.



Jaan.1.18

Xariiqda tiradu waxay tustaa $3 + (-5) = -2$, heerkulka 0°C ayuu ka hoosmaray 2°C . Haddii heerkulku u kordho 9°C oo kadibna hoosu ugu dhaco 9°C , wuxuu ku soo noqoday bar bilawigiisii, $9 - 9 = 0$.

Hawlgal 1.7

- 1 U adeegso xariiq tiro soo saarista wadar kasta

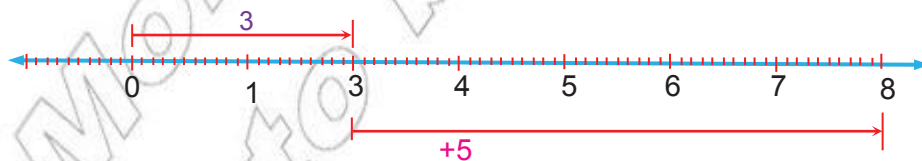
b $-12 + 8$	t $6 + (-7)$	j $-3 + (-15)$	x $\frac{3}{2} + \frac{1}{2}$
--------------------	---------------------	-----------------------	--------------------------------------
- 2 Kala goo

b 29 ka goo 17	t -32 ka goo -15
j 23 ka goo 38	x 12 ka goo -23
- 3 Heerkulka duhur wuxuu ahaa 112°F . Saacad ka dib heerkulka wuxuu hoos ugu dhacay 19°F . Imisa ayuu ahaa heer kulka 1:00 galabnimo?
- 4 Sallaan ayaa ka dhaqaaqay dabaqa 5aad wuxu kor u socoday 3 dabaq, islamarkaa hoos u socoday 6 dabaq, kor 9 dabaq, kor 3 dabaq, hoos 2 dabaq, hadana hoos 3 dabaq. Ugu dambayn dabaqee ayuu sallaanku istaagay?

Tusaale 2: U adeegso xariiq tiro helista wadar kasta .

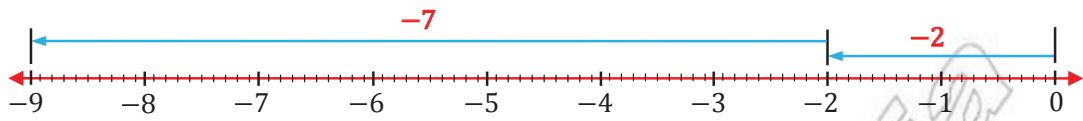
b $3 + 5$	t $-2 + (-7)$	j $9 + (-5)$	x $-8 + 5$
------------------	----------------------	---------------------	-------------------

Furfuris: **b** si aad isugu geyso 3 iyo 5 xariiqda tirada korkeeda, 0 ka bilow oo u soco midig saddex halbeeg ilaa 3, hadana u sii wad shan halbeeg oo dheeraad ah midig. Tani waxay ku keenaysaa 8 kolkaa $3 + 5 = 8$ sida uu muujiyey [jaan.1.19](#).



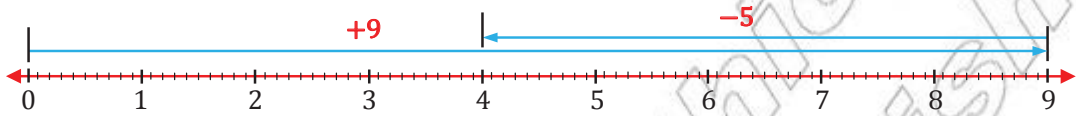
Jaan. 1.19

t ka bilow barta eber oo u sii wad laba halbeeg ilaa -2 bidixda si aad -7 ugu geyso -2 , adoo ka bilaabaya -2 u dhaqaaq 7 halbeeg bidix, haddaba, waxaad ku dhammaynaysaa barta -9 halkaa, $-2 + (-7) = -9$ sida u muujiyey [Jaan.1.20](#).



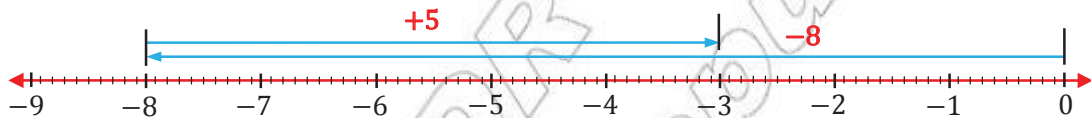
Jaan 1.21

- j** 0 ka bilow oo u soco midig 9 halbeeg ilaa barta 9. Si aad isugu geysto 9 iyo -5 uga dhaqaaq 5 halbeeg bidix barta 9 waxaad ku joojin 4. Kolkaa $9 + (-5) = 4$; sidaa u tilmaamayo [jaan.1.21](#)



Jaan. 1.21

- x** Si aad isugu geysto -8 iyo 5, ka bilow 0, ugu soco 8 halbeeg bidix ilaa barta -8 , -8 ka bilow oo uga soco 5 halbeeg midig waxaad ku joogsan barta -3 . Kolkaa $-8 + 5 = -3$ sida lagu muujiyey [jaan. 1.22](#).



Jaan. 1.22

Waxa kuu suurtagashay inaad naqshadaha qaar ah ku ogaatay tusaalaha 14^{aad}. Naqshadahani waxay kuu saamaxayaan inaad isu geynta wax badan maskaxda kaga Furfurto.

1.3.1 Isu Geynta Tirooyinka Lakab

Dib u xusuuso ka hor inta aan jajabyada la isu geyn ama la kala goyn, in ay labaduba yeeshaan hooseeye mid ah (loo yaqaan hooseeye ay wadaagaan). Waxaa jira laba xeer oo guud ahaan ay u leedahay isu geynta tirooyinka lakab. Xeerka loo adeegsado qiimaha sugan.

Xeer 1: Kolkaa biirooyinku leeyihiin summada mid ah:-

- ◆ wadarta laba tiro lakab togani way togan tahay
- ◆ wadarta laba tiro lakab tabani way taban tahay

Tusaale 3: Soo saar wadar kasta

b $12 + 7$

t $\frac{-7}{4} + \left(\frac{-13}{8}\right)$

Furfuris: **b** Si aad u soo saarto wadarta laba tiro lakab, si fudud isugu gee iyaga $12 + 7 = 19$.

Waa in ay toгнаатаa wadarta laba tiro lakab togan

t Si loo soo saaro wadarta laba tiro lakab taban sida

$$\frac{-7}{4} + \left(\frac{-13}{8}\right)$$

Soo saar wadarta qiimaha sugan

$$\left|\frac{-7}{4}\right| + \left|\frac{-13}{8}\right| = \frac{7}{4} + \frac{13}{8} = \frac{27}{8}$$

Sii wadarta summadda asalka u ahayd tirooyinka lakab

$$\frac{-7}{4} + \left(\frac{-13}{8}\right) = -\frac{27}{8}$$

$$\text{Si kooban, } \frac{-7}{4} + \left(\frac{-13}{8}\right) = -\left(\left|\frac{-7}{4}\right| + \left|\frac{-13}{8}\right|\right) = -\left(\frac{7}{4} + \frac{13}{8}\right) = -\frac{27}{8}$$

Xeer 2: Kolka birooyinku leeyihiin summado kala duwan.

- ◆ soo saar qiimayaasha sugan ee labada tiro lakab
- ◆ Biirada leh qiimaha sugan ee wayn ka goo biirada qiimaha sugan ee yar leh.
- ◆ Ku qor summadda faraqa summadda qiimaha sugan ee wayn leedahay

Ogow: 1 $\frac{a}{b} + \frac{c}{b} = \frac{a+c}{b}, b \neq 0$

2 $\frac{a}{b} + \frac{c}{d} = \frac{ad+bc}{bd}, b, d \neq 0$

Tusaale 4: Soo saar wadar kasta

b $-13+8$ **t** $-\frac{5}{6} + \frac{17}{3}$ **j** $12+(17)$ **x** $\frac{13}{21} + \frac{-10}{7}$

Furfuris: **b** $|-13|=13$ and $|8|=8$

$$13-8=5$$

$$\text{Kolkaa, } -13+8 = -5$$

$$\begin{aligned} \text{t} \quad \left| \frac{-5}{6} \right| &= \frac{5}{6} \text{ iyo } \left| \frac{17}{3} \right| = \frac{17}{3} \\ \frac{17}{3} - \frac{5}{6} &= \frac{34}{6} - \frac{5}{6} = \frac{34-5}{6} = \frac{29}{6} \\ \text{Haddaba, } \frac{-5}{6} + \frac{17}{3} &= \frac{29}{6} \end{aligned}$$

$$\begin{aligned} \text{j} \quad |12| &= 12 \text{ iyo } |-17| = 17 \\ 17 - 12 &= 5 \\ \text{Haddaba, } 12 + (-17) &= -5 \end{aligned}$$

$$\begin{aligned} \text{x} \quad \left| \frac{13}{21} \right| &= \frac{13}{21} \text{ iyo } \left| \frac{-10}{7} \right| = \frac{10}{7} \\ \frac{10}{7} - \frac{13}{21} &= \frac{30-13}{21} = \frac{17}{21} \\ \text{Haddaba, } \frac{13}{21} + \left(\frac{-10}{7} \right) &= \frac{-17}{21} \end{aligned}$$

Tusaale 5: Soo saar wadar kasta

$$\text{b} \quad \frac{-5}{3} + \left(\frac{-7}{3} \right) \quad \text{t} \quad -0.5 + (-0.7)$$

$$\text{Furfuris: } \text{b} \quad \frac{-5}{3} + \left(\frac{-7}{3} \right) = - \left(\left| \frac{-5}{3} \right| + \left| \frac{-7}{3} \right| \right) = - \left(\frac{5}{3} + \frac{7}{3} \right) = - \frac{12}{3} = -4$$

$$\text{ama } \frac{-7}{3} + \left(\frac{-5}{3} \right) = - \left(\left| \frac{-7}{3} \right| + \left| \frac{-5}{3} \right| \right) = - \left(\frac{7}{3} + \frac{5}{3} \right) = - \frac{12}{3} = -4$$

$$\text{t} \quad -0.5 + (-0.7) = - (|-0.5| + |-0.7|) = - (0.5 + 0.7) = -1.2$$

$$-0.7 + (-0.5) = - (|-0.7| + |-0.5|) = - (0.7 + 0.5) = -1.2$$

Ogow in labada xaaladoodba bedalidda horsanaanta biirooyinka aanay bedelayn wadarta. Astaanta bedalida horsanaanta waxa la yidhaaahdaa kala hormarinta isu geynta.

Astaanta kala hormarinta isu geynta:

$$\text{Laba tiro lakab kasta } \frac{a}{b} \text{ and } \frac{c}{d}, \quad \frac{a}{b} + \frac{c}{d} = \frac{c}{d} + \frac{a}{b}.$$

Waa maxay, markii aynu doonayno inaynu isu geyno in ka badan laba tirooyin lakab ah?

Tusaale 6: Raadi wadarta

$$(8 + (-5)) + (-7)$$

Furfuris: $8 + (-5) + (-7)$ isu gee labada hore

$$= 3 + (-7) \text{ ka dib wadarta u gee ta saddexaad.}$$

$$= -4$$

Hadda, waa inaan isku deynaa qaabka labaad.

$$8 + ((-5)) + (-7) \dots\dots\dots \text{hada isugee ka labaad iyo ka saddexaad.}$$

$$= 8 + (-12) \dots\dots\dots \text{markaa wadarta ugee ka hore.}$$

$$= -4$$

Habka aan u kooxeyney biirooyinku ma badeleyso wadarta Astaanta kooxeynta ee isugeynta waxa loo yaqaanaa. Astaanta hormogelinta isugeynta

Astaanta hormogelinta ee isu geynta

$$\text{Tiro kastoo lakab } \frac{a}{b}, \frac{c}{d} \text{ iyo } \frac{e}{f}, \left(\frac{a}{b} + \frac{c}{d}\right) + \frac{e}{f} = \frac{a}{b} + \left(\frac{c}{d} + \frac{e}{f}\right)$$

Maxaa dhaca kolka aad eber u geyso tiro lakab ama aad tiro lakab u gayso eber?

$$\frac{4}{9} + 0 = \frac{4}{9} \text{ islamarkaa } 0 + \frac{4}{9} = \frac{4}{9}$$

Haddaba, wadarta tiro lakab iyo eber waa tirada lafteedii. Sababtoo ah xaqiiqadan 0 waxa la yidhaa asalmaadoorshaha isu geynta.

Asalmadoorshaha isu geynta

$$\text{Tiro lakab kastoo ah } \frac{a}{b}, \frac{a}{b} + 0 = \frac{a}{b} = 0 + \frac{a}{b}.$$

Waxaad ku soo aragtay qaybta 1.1 inuu abyoone kastaa leeyahay lid. Si la mid ah, tiro lakab kastoo ah $\frac{a}{b}$, waxa jirta tiro lakab ah $-\frac{a}{b}$ oo ay $\frac{a}{b} + \left(-\frac{a}{b}\right) = 0$. Tiro

lakabka $-\frac{a}{b}$ waxa la yidhaa rogaalka isu geynta (ama lidka) $\frac{a}{b}$.

Laylis 1.4

1 Isticmaal xariiqda tiro si, aad u hesho wadarta.

b $-4 + (-7)$

t $-28 + 12$

j $12 + (-9)$

x $\frac{-3}{2} + \left(\frac{-3}{4}\right)$

kh $11 + (-8)$

d $-14 + (-20)$

2 Ka shaqee kuwan soo socda:-

b $\frac{43}{8} + \left(\frac{-25}{8}\right)$

t $\frac{29}{8} + \left(\frac{-17}{8}\right)$

j $\frac{-73}{16} + \frac{119}{16}$

x $4 + (-7) + (-15)$

kh $\frac{-41}{10} + \left(\frac{-58}{10}\right)$

d $0 + (-20)$

r $7 + (-8) + (-9) + 10$

s $-395 + 175$

sh $215 + (-117)$

dh $-13.2 + (-11.1) + 13.2$

c $-3.7 + 5.8 + 0.7 + (-0.8)$

g $-3.9 + 0.8 + 0.1 + \left(\frac{-1}{2}\right)$

f $57 + (-22) + (-18)$

q $4\frac{1}{6} + \left(2\frac{1}{5}\right)$

k $3.74 + (-1.24)$

3 Qor oo dhameystir tusaha soo socda.

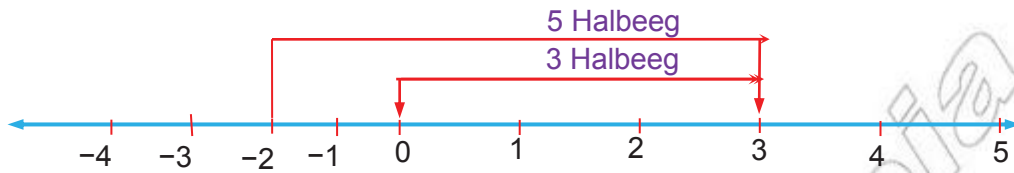
<i>a</i>	<i>b</i>	<i>c</i>	<i>a + b</i>	<i>b + a</i>	<i>(a + b) + c</i>	<i>b + c</i>	<i>a + (b + c)</i>
3	-4	8					
-1.5	-2.7	3.2					
$\frac{3}{4}$	$\frac{-5}{7}$	-0.5					
-7	-12	-8					

4 Heerkulka maalin axada 4tii galabnimo 41°C ayuu hoos uga dhacay ilaa -11°C habeen badhkii. Haddaba inteebuu heerkulku hoos u dhacay?

1.3.2 Kala Goynta Tirooyinka lakab

Kala qoynta tirooyinka lakab waxay la mid tahay isu geynta tirooyinka lakab

Fiiri xariiqda tiro ee [Jaan.1.23](#)



Jaana.1.23

Sidaas dardard, $3 - 5 = 3 + (-5)$

Kala goynta waxaa loo yaqaanaa xisaabfalka rogaalee isu geynta Taas Macnaheedu waxay tahay masalo kasta oo kala goyn ah waxaa loo qori karaa isugeyn.

Tusaale, fiiri kuwan soo socda:

Kalagoynta

$$12 - 9 = 3$$

$$14 - (-10) = 24$$

$$-8 - (-15) = 7$$

isugeyn

$$12 + (-9) = 3$$

$$14 + (10) = 24$$

$$-8 + (15) = 7$$

Lammaane kasta oo masaladani ahi waxay ina tusayaa in ay ka goynta tiro lamid tahay u geynta lidka tiro. Natijadani waxay inagu hogaamineysaa xeerarka kala goynta ee soosocda.

Xeerka 1: Si loo kala gooyo tirooyinka lakab, isu gee tirada hore iyo lidka tiro lakab ee ah in laga gooyo. Koobnaan, tirooyinka lakab kastoo ah

$$\frac{a}{b} \text{ iyo } \frac{c}{b}, \frac{a}{b} - \frac{c}{b} = \frac{a}{b} + \left(-\frac{c}{b}\right).$$

Tusaale 7: kala goo kawan soo socda.

b $-8 - 13$

j $\frac{-1}{2} - \frac{(-3)}{4}$

Furfurris: **b** $-8 - 13 = -8 + (-13) = -21$

t $38 - (-22) = 38 + (22) = 60$

j $\frac{-1}{2} - \frac{(-3)}{4} = \frac{-1}{2} + \left(\frac{3}{4}\right) = \frac{-1}{2} + \frac{3}{4} = \frac{1}{4}$

x $-0.5 - (-0.2) = -0.5 + 0.2 = -0.3$

Xusuusnow: Kala goyntu sax kuma ah Kala hormarinta sidoo kalana sax kuma aha hormogalinta.

Laylis 1.5

1 Isticmaal xariiq tiro si, aad u raadiso faraaqa.

$$\begin{array}{ll} \mathbf{b} & -6 + 12 & \mathbf{t} & -13 - (-8) \\ \mathbf{j} & \frac{18}{20} - \frac{(-12)}{20} & \mathbf{x} & \frac{13}{7} - \frac{7}{13} \end{array}$$

2 Ka shaqee kuwa soo socda.

$$\begin{array}{llll} \mathbf{b} & -7 - (-9) & \mathbf{t} & -4.2 - (-7.2) + 8 & \mathbf{j} & -1.5 - 1.3 + (-1.8) \\ \mathbf{x} & -9 - (-5) - 7 & \mathbf{kh} & \frac{-9}{4} - \left(-\frac{15}{4} \right) & \mathbf{d} & -10 - 8 - (-7) \\ \mathbf{r} & \frac{13}{4} - \left(\frac{-7}{4} \right) & \mathbf{s} & 3\frac{1}{4} - \left(2\frac{1}{5} \right) & & \end{array}$$

3 Guuri oo dhamaystir tusaha soo socda.

x	y	z	$x - y$	$y - x$	$(x - y) - z$	$y - z$	$x - (y - z)$
8	-5	-10					
-1.5	2.8	-3.5					
$2\frac{1}{3}$	$-1\frac{1}{4}$	$\frac{-1}{4}$					
$\frac{-1}{2}$	-2.8	-1.5					

4 Tusaale ka bixi inayna kala goynta tirooyinka lakab aanay ku sax ahayn.

$$\mathbf{b} \quad \text{Astaanta kala hormarinta.} \quad \mathbf{t} \quad \text{Astaanta hormogalinta.}$$

5 Raadiyaha, ayaa laga baahiyey saadaasha hawada xiliga jiilaalka uu heerkulku ahaa -8°C . Saadaaliyaha ayaa raaciyey in heerkulku uu hoos ugu dhici doono ilaa 4°C habeenimada Maxay ayuu ahaa heerkulka la filayey subaxdii xigtay?

1.3.3 Iskudhufashada tirooyinka lakab

Waxaad ogtahay in masalada iskudhufashada loo qoro isu geynta soo noqnoqota.

$$\text{Tusaale ahaan; } 5 \times 7 = 7 + 7 + 7 + 7 + 7 = 35$$

$$4 \times \left(-\frac{6}{5} \right) = \left(-\frac{6}{5} \right) + \left(-\frac{6}{5} \right) + \left(-\frac{6}{5} \right) + \left(-\frac{6}{5} \right) = -\frac{24}{5}$$

Hawlgal 1.8

1 U qor isku dhufashada masalo kasta sida isu geynta soo noqnoqota.

$$\text{b} \quad 6 \times (-8) \qquad \text{t} \quad 8 \times \frac{3}{4} \qquad \text{j} \quad -4 \times 3$$

2 Raadi taranta.

$$\text{b} \quad 5 \times (-16) \qquad \text{t} \quad (1.5)(-0.3)$$

$$\text{j} \quad \left(-\frac{5}{8}\right) \times \left(\frac{4}{15}\right) \qquad \text{x} \quad (-0.8)(0.3)$$

Guud ahaan, waxaan u isticmaaleynaa laba xeer markaan iskudhufaneyno tirooyinka lakab.

Xeerka 1: Taranta laba tiro lakab oo leh summado kala duwan waxaa lagu helaa laba tallaabo.

Tallabada 1: Gu'aami summadda: summaddu waa “-”.

Tallabada 2: Qaado qiimahooda sugan oo iyaga isku dhufo.

Si kale haddaan u nidhaa, tirooyin lakab kastoo a iyo b ah, haddii a iyo b midkood taban yahay, kolkaa $a \times b = -(|a| \times |b|)$

Tusaale 8: Raadi taran kasta.

$$\text{b} \quad 8 \times \left(\frac{-17}{16}\right) \qquad \text{t} \quad -12 \times 6$$

$$\text{Furfuris: b} \quad 8 \times \left(\frac{-17}{16}\right) = -\left(|8| \times \left|\frac{-17}{16}\right|\right) = -\frac{17}{2}$$

$$\text{t} \quad -12 \times 6 = -(|-12| \times |6|) = -(12 \times 6) = -72$$

Xeerka2: Taranta laba tiro lakab taban.

Talkabada 1: Gu'aami summadda taranta; summaddu waa “+”

Tallaabada 2: Qaado qiimayaasha sugan ee tirooyinka oo iyaga isku dhufo.

Kolkaan si kale u nidhaa, tirooyin lakab kastoo a iyo b ah, haddi a iyo b ay labaduba taban yihiin, kolkaa, $(-a) \times (-b) = |a| \times |b|$

Tusaale 9: Raadi taran kasta.

$$\text{b} \quad (-6) \times (-4) \qquad \text{t} \quad \left(\frac{-12}{7}\right) \times \left(\frac{-21}{4}\right)$$

Furfuris: **b** $(-6) \times (-4) = |-6| \times |-4| = 6 \times 4 = 24$

t $\left(-\frac{12}{7}\right)\left(-\frac{21}{4}\right) = \left|\frac{-12}{7}\right| \times \left|\frac{-21}{4}\right| = \frac{12}{7} \times \frac{21}{4} = 9$

Naqshadaha soo socda ayaa waxaa iyana suuragal ah inay kaa caawiyaan inaad aragto sidii aad u sugan kari lahayd summadda taranta.

$$3 \times (-2) = -6$$

$$2 \times (-2) = -4$$

$$1 \times (-2) = -2$$

$$0 \times (-2) = 0$$

$$-1 \times (-2) = 2$$

$$-2 \times (-2) = 4$$

$$-3 \times (-2) = 6$$

Ma arkaysaa in tarantu markasta u sii kordhayso 2. Halka tirada hore u sii yaraanayso

Tani waxay go'aamisaa in taranta laba tirooyin lakab taban ay tahay tiro lakab togan.

Tusaale 10: Raadi taran kasta:

b $-13 \times (-8)$ **t** $-2.4 \times (3.5)$

Furfuris: **b** $-13 \times (-8) = (-13) \times (-8) = 13 \times 8 = 104$

t $-2.4 \times 3.5 = (-2.4) \times 3.5 = (-2.4 \times 3.5) = -8.4$

Waxaad soo aragtey Astaamaha kala hormarinta iyo hormogalinta isu geyntu. Si la mida ma noqotaa isku dhufashadana? Kuwa soo socda ugu fiirso tusaale ahaan.

b $(-6) \times 7 = (-6 \times 7)$
 $= (-6 \times 7)$
 $= -[7 + 7 + 7 + 7 + 7 + 7] = -42$

$7 \times (-6) = (-6) + (-6) + (-6) + (-6) + (-6) + (-6) + (-6)$

Sidaas darted, $(-6) \times 7 = 7 \times (-6) = -42$

t $(-4) \times (-5) = |-4| \times |-5| = |-4| \times |-5| = 4 \times 5 = 5 + 5 + 5 + 5 = 20$

$(-5) \times (-4) = |-5| \times |-4| = 5 \times 4 = 4 + 4 + 4 + 4 + 4 = 20$

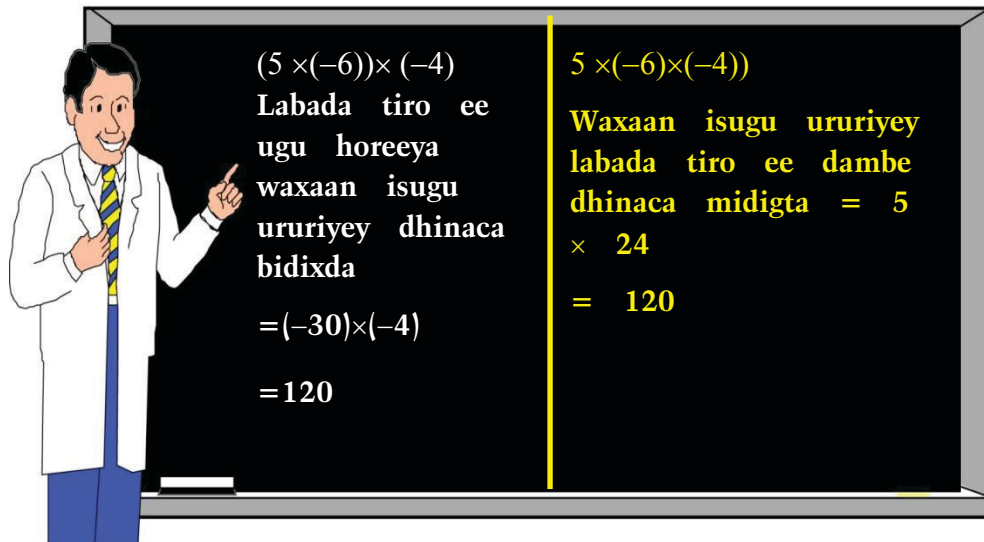
markaa, $(-4) \times (-5) = (-5) \times (-4) = 20$

Sidaa awgeed, horsanaanta aan iskugu dhufanayno ma bedaleyso taranta. Horsanaanta isirada sidaniya ayaa waxa la yidhaa astaanta kala hormarinta isku dhufashada.

Astaanta kala hormarinta isku dhufashada tirooyin lakab kastoo a iyo b ah, $a \times b = b \times a$.

Waa maxay nidaarnka aan u kooxayno isku dhufashada tirooyinka lakab? uga fiirso tusaale ahaan kuwa soo socda.

$$\begin{aligned} \text{Isku dhufo } (5 \times (-6)) \times (-4) \text{ ama } 5 \times ((-6) \times (-4)) \\ &= (5 \times -6) \times (-4) &= 5 \times (-6 \times -4) \\ &= (-30) \times (-4) &= 5 \times 24 \\ &= 120 &= 120 \end{aligned}$$



Jaana. 1.24

Ogow in tarantu isku mid tahay labada xaaladoodba. Sidaa darteed, nidaamka aan u kooxeyney isirada aaney taranta bedaleyn. U kooxeynta sidani ah ee isirada waxa la yidhaa astaanta hormagalinta isku dhufashada.

Astaanta hormagalinta isku dhufashada. (Tirooyin lakab kastoo a iyo b iyo c ah, $(a \times b) \times c = a \times (b \times c)$).

Tirada 0 iyo 1 waxay ku leeyihiin astaamo gaar ah iskudhufashada. Maxaa dhaca kolkaad tiro lakab kasta ku dhufato 0?

$$6 \times 0 = 0 + 0 + 0 + 0 + 0 + 0 = 0$$

Taranta tiro lakab kasta iyo 0 waa 0. Taasoo ah, tiro lakab kastoo a ah, $a \times 0 = 0$.

Maxaa dhaca kolkaad tiro lakab ku dhufato 1?

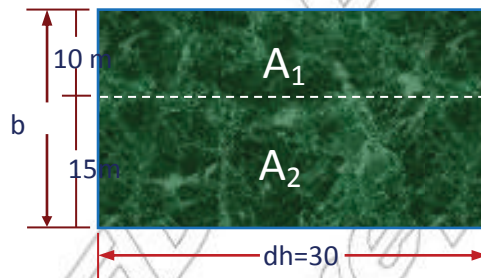
$$12 \times 1 = 12 \text{ islamarkaa } 1 \times 12 = 12$$

Taranta 1 iyo tiro lakab kasta waa tirada nafteeda. Taasoo ah, tiro lakab kasta oo "a", $a \times 1 = a$.

Astaantani waxa la yidhaa astaanta asal-madoorshaha isku dhufashada.

Astaanta kalee muhiimka u ah isku dhufashadu waa astaanta kala dhigga. Astaanta kalee dhiggu waxay ku lug leedahay isugeynta iyo isku dhufashada oo wadajira si astaantani bayaan loogu arko. Dheeho tusaalaha 11^{aad} ee hoos lagugu siiyey.

Tusaale 11: Hana waxay leedahay beer leh qaab laydi taasoo dhererkeedu tahay 30m, ballaceduna yahay 25m, Haddaba dhulkan waxay u isticmashaa laba arimood. Hana iyo aabaheed waxay ku kala xisaabiyeen Bedka dhulka jidadka kala duwan ee soo socda.



Jaan. 1.25

Hana



Hana waxay iskugu dhufatey dhererka iyo labada balac oo la isku geeyey

$$\begin{aligned} A_T &= l \times (b_1 + b_2) \\ &= 30 \times (10 + 15) \\ &= 30 \times (25) \\ &= 750\text{m}^2 \end{aligned}$$

Aabe



Aabahu wuxuu isu geeyey labada bed

$$\begin{aligned} A_T &= A_1 + A_2 \\ &= dh \times b_1 + dh \times b_2 \\ &= (30 \times 10) + (30 \times 15) \\ &= 300 + 450 \\ &= 750\text{m}^2 \end{aligned}$$

Labada xisaabood waa iskumid $30 \times (10 + 15) = (30 \times 10) + (30 \times 15)$

Tani waxay inagu hogaamin astaanta soo socota.

Astaanta kala dhigga

Tirooyin lakab kastoo a, b, c, d, e iyo f ah.

$$\frac{a}{b} \times \left(\frac{c}{d} + \frac{e}{f} \right) = \left(\frac{a}{b} \times \frac{c}{d} \right) + \left(\frac{a}{b} \times \frac{e}{f} \right)$$

$$\left(\frac{c}{d} + \frac{e}{f} \right) \times \frac{a}{b} = \left(\frac{c}{d} \times \frac{a}{b} \right) + \left(\frac{e}{f} \times \frac{a}{b} \right)$$

Tusaale 12: Adigoo isticmaalaya astaanta kala dhiga fududee kuwan soo socda.

$$\mathbf{b} \quad 6 \times \left(-\frac{3}{4} + \frac{5}{12} \right)$$

$$\mathbf{t} \quad -\frac{3}{4} \times (9.6 + (-4.8))$$

Furfuris: $\mathbf{b} \quad 6 \times \left(-\frac{3}{4} + \frac{5}{12} \right)$

$\mathbf{t} \quad -\frac{3}{4} \times (9.6 + (-4.8))$

$$= 6 \times -\frac{3}{4} + 6 \times \frac{5}{12}$$

$$= -\frac{3}{4} \times (9.6) + \frac{-3}{4} \times (-4.8)$$

$$= -\frac{9}{2} + \frac{5}{2}$$

$$= (-7.2) + 3.6$$

$$= \frac{-9+5}{2}$$

$$= -3.6$$

$$= \frac{-4}{2} = -2$$

Tusaale 13: Bakaal iyo maxamed ayaa la weydiiyey inay fududeeyaan

$$(-2) \times \frac{3}{4} \times (-12) \times \left(-\frac{1}{3} \right).$$

Bakaal:- Maadaama ay 3 tiro taban ka kooban tahay summadda tarantu way taban tahay. Markaa, waan isku dhufan karaa summad la'aan.

$$2 \times \frac{3}{4} = \frac{3}{2} \rightarrow \frac{3}{2} \times 12 = 18 \Rightarrow 18 \times \frac{1}{3} = 6$$

Jawaabtuna waa -6

Maxamed: Waxaan isugu dhufan karaa tirooyinka lammaane laba laba ahaan.

$$2 \times \frac{3}{4} = \frac{-3}{2} - \frac{3}{2} \times -12 = 18 \quad 18 \times \frac{-1}{3} = -6$$

Xusuusnow: Kolka la isku dhufanayo laba ama tirooyin lakab badan oo taban.

- i** Haddii tirada isirada taban ay dhaban tahay taranta way togan tahay.
- ii** Haddii tirada isirada taban ay kisi yihiin tarantu way taban tahay.

Laylis 1.6

1 Raadi taranta:-

b $(-8) \times (9)$

t $(-7) \times (-6)$

j $(-10) \times 0$

x $\left(\frac{-7}{10}\right) \times \left(\frac{-5}{14}\right)$

kh $\left(\frac{-5}{8}\right) \times \left(\frac{-4}{15}\right)$

d $(-1.2) \times (1.2)$

r $\left(\frac{-3}{8}\right) \times \frac{4}{9}$

s $\left(\frac{-8}{21}\right) \times \left(\frac{-7}{4}\right)$

2 Xisaabi taranada soo socda.

b $-0.7 \times (0.25)$

t $\frac{-3}{4} \times 0.9 \times \left(-\frac{2}{5}\right)$

j $(-10)^2 \times (-0.001) \times 10$

x $-0.3 \times (-5) \times 2$

kh $-2 \times 6 \times (-50) \times 3$

d $25 \times 7 \times (-4)$

r $-2 \times \frac{3}{7} \times 0.5 \times (-7)$

s $-9.3 \times 7 \times (-1.1) \times (-2) \times (-10)$

3 Sug summadda oo kaliya.

b $-37 \times (-22) \times 0.73 \times (-1)$

t $-2.3 \times 1.7 \times (-1.2) \times (-7) \times (-9)$

j $(-4) \times (-3) \times (-6) \times (-2)$

x $(-2) \times (-5) \times (-3) \times (-6)$

kh $\frac{4}{5} \times 0.4 \times \left(-\frac{1}{2}\right) \times 1.2 \times 20$

d $\frac{-1}{2} \times 0.5 \times (-1) \times (5)$

4 Adigoo isticmaalaya astaanta kala dhigga fududee kuwa soo socda.

b $5(-6 + 9)$

t $-5(-8 - 6)$

j $-8(-9 + 15)$

x $-7(-2 - 3)$

kh $5(1.8 + 2.2)$

d $\left(\frac{-2}{3} + \frac{5}{4}\right) \times (-12)$

r $5\frac{1}{4}(1.8 + 2.2)$

s $\frac{-3}{4}(0.8 + (-16))$

5 Dhig calaamada saxda ku'ah xidhiidhadan (<, = ama >).

b $\left(\frac{-2}{3}\right)\left(\frac{-2}{3}\right) \text{ — } \frac{4}{9}$

t $-0.1 \times (-0.85) \text{ — } -1$

j $9 \times (-7) \text{ — } 63$

x $25 \times 9.8 \text{ — } 98 \times (2.5)$

kh $-27.2 \times 0.192 \text{ — } -2$

d $-0.95 \text{ — } 0.01 \times (-0.95)$

r $\frac{-2}{3} \times \left(\frac{5}{6} + (-1)\right) \text{ — } \left(\frac{-2}{3} \times \frac{5}{6}\right) - \left(\frac{-2}{3} \times 1\right)$

s $\left(-2 \times \frac{-1}{2} \times 4\right) \text{ — } -2 \times \left(\frac{-1}{2} \times 4\right)$

6 Guuri oo dhameystir tusaha soo socda.

a	b	c	$a \times b$	$b \times a$	$(a \times b) \times c$	$a \times (b \times c)$
-2	8	-5				
$-\frac{1}{2}$	$\frac{-3}{2}$	4				
-0.5	-0.25	$-\frac{4}{5}$				
$-\frac{3}{4}$	-8	$-\frac{1}{2}$				

7 xisaabi natiijo kasta ka dibna isbarbardhig.

b $(5 + 3) \times 4$ iyo $5 + 3 \times 4$ **t** $(-5 + 3) \times 2$ iyo $-6 + 3 \times 2$

j $(-6 - 7) \times -2$ iyo $-6 \times -2 + (7 \times -2)$

8 ka soo qaad $x = \frac{-1}{2}$, $y = \frac{7}{6}$ iyo $z = \frac{1}{9}$ markaa caddee kuwan soo socda.

b $x(y + z) = xy + xz$ **t** $x(y - z) = xy - xz$

j $(xy)z = x(yz)$ **x** $xy = yx$

1.3.4 Isu qeybinta Tirooyinka lakab

Xeerarka isu qeybinta laba tiro lakab waxay la mid tahay isku dhufashada laba tiro lakab. Haddaba isuqeybinta iyo iskudhufashadu waa laba xisaabfal oo xidhiidh leh.

Hawlgal 1.9

1 Keebaa weyn marka tiro lakab taban lagu dhufto tiro lakab taban, iyo marka tiro lakab taban lagu dhufto tiro lakab togan.

2 Kooxda fanka ayaa riwaayad ka dhigey dugsi 8 qof oo ay kooxdu ka koobneyd ayaa waxay go'aansadeen iney si isle'eg u qaybsadaan lacag dhan 960 birr Durbaanlihii ayaa wuxuu qaatay qalin iyo warqad. Wuxuu isuqeybiyey $960 \div 8$ sidoo kale waxaa qaatay kalkuleetarkiisii giitaargaraacihii wuxuuna isku dhuftey $960 \times \frac{1}{8}$.

b Miyey heleyaan natiijo isku mid ah?

t Maxaad si guud ugu soo gunaanadi laheyd labada xisaabood?

3 Isu qeybi

$$\text{b} \quad -\frac{72}{6} \quad \text{t} \quad \frac{-225}{-25} \quad \text{j} \quad \frac{0}{-6} \quad \text{x} \quad \frac{-\frac{5}{4}}{\frac{2}{3}}$$

4 Tibixdan $\frac{18}{6}$ waa tiradee la qeybshuhu ama qeybshuhu?

5 Raadi taranta.

$$\text{b} \quad 6 \times \frac{1}{6} \quad \text{t} \quad (-x) \left(\frac{1}{x} \right) x \neq 0$$

$$\text{j} \quad a \times \frac{1}{a}, a \neq 0 \quad \text{x} \quad \frac{a}{b} \times \frac{b}{a}; a \neq 0, b \neq 0$$

Iskudhufashada iyo isuqeybintu waa xisaabfalo isku rogaal ah.

Waxaan u isticmaali karnaa isuqeybinta markaan hal isir raadineyno, oo aan haysano hal isir iyo taranta.



Sidoo kale maadaama $4 \times -2 = -8$ waxa ka iman, $-8 \div 2 = -4$ inagoo tibxahan ka duulayna. Waxaad odhan kartaa isuqeybintu waa u rogaalka iskudhufashada.

Tusaale 14: Isuqeybi mid walba kuwan soo socda.

$$\text{b} \quad -48 \div -16 = -48 \times \frac{1}{-16} = \frac{48}{16} = 3$$

$$\text{t} \quad \frac{-5}{8} \div \frac{1}{4} = \frac{-5}{8} \times 4 = \frac{-5}{2}$$

$$\text{j} \quad -4.2 \div (-0.6) = -4.2 \times \frac{-10}{6} = \frac{42}{6} = 7$$

$$\text{x} \quad \frac{24}{7} \div \frac{-3}{14} = \frac{24}{7} \times \frac{-14}{3} = -16$$

Xusuusnow: i Haddii a iyo b ay yihiin tirooyin lakab, $b \neq 0$, kolkaa

$$\frac{a}{b} = a \times \frac{1}{b}$$

ii Tirooyin lakab kasta a iyo b ah oo $b \neq 0$, haddii $a \times b = 1$, kolkaa tiro lakab kasta waa u rogaal tiro lakabka kale.

Inagoo ka duuleyna waxaan kor kusoo qeexney, ayaa waxaan hadda fiirineynaa isuqaybinta tirooyinka lakab iyo xeerarkooda.

Xeerka 1: Suggidda summadda qaybta.

b Haddii ay summadaha la qaybshaha iyo qaybshuhu isku mid tahay, kolkaa summadda qaybtu waa “+”.

$$\text{Tusaale, ahaan } \frac{-48}{-6} = \frac{48}{6} = 8$$

t Haddii summadda la qaybshaha iyo qaybshuhu ay kala duwan yihiin, kolkaa summadda qaybtu waa “-”.

$$\text{Tusaale, ahaan } \frac{-39}{3} = \frac{-39}{3} = -13$$

Xeerka 2: In la helo qiimaha qaybta. Qiimaha sugan ee laqaybshaha u qaybi qiimaha sugan ee qaybsha ha.

Tusaale 15: Isu qaybi kuwa soo socda

$$\mathbf{b} \quad 18 \div 6 \quad \mathbf{t} \quad -8.4 \div 1.4 \quad \mathbf{j} \quad \frac{-15}{4} \div \left(\frac{-1}{8} \right)$$

Furfuris:

tiro	Masalada	calaamada	Qiimaha sugan	qeybta
a	$18 \div -6$	-	$18 \div 6$	3
b	$-8.4 \div 1.4$	-	$8.4 \div 1.4$	6
c	$\frac{-15}{4} \div \frac{-1}{8}$	+	$\frac{15}{4} \div \frac{1}{8} = \frac{15}{4} \times 8$	30

XUSUUSO:

- i Kolka 0 loo qaybiyo tiro lakab aan eber ahayn, qaybtu waa eber. Taaso ah, $0 \div a = 0$, $a \neq 0$.
- ii Tiro lakab u qaybinta 0, kuma shaqeyso. Taasoo ah, $a \div 0$. Maqeeexna. Tusaal ahaan, $-8 \div 0$, waxay macnaheedu tahay waxa jiro tiro lakab 'a' ah oo ay $a \times 0 = -8$. Laakiin $0 \times a = 0$ haddaba $0 \times a = 0 \neq -8$. Si lamid ah, $a = 0 \div 0$ macnuhu waa $a \times 0$ laakiin $0 \div 0$ way jaban tahay.
- iii Tirooyin lakab kastoo a iyo b ah, $b \neq 0$ $a \div b = \frac{a}{b}$

Kolka la maago xeerka isu qaybinta, waxaa la socda in $\frac{a}{-b} = \frac{-a}{b} = -\frac{a}{b}$

($a, b \in \mathbb{Q}$, $b \neq 0$).

Tusaale ahaan, $\frac{-24}{8} = \frac{24}{-8} = \frac{-24}{8} = -3$

Leylis 1.7

- 1 Korka ka xisaabi.
- | | | | | | |
|----------|--------------------|-----------|---------------------------------------|----------|---------------------|
| b | $48 \div (-8)$ | t | $2.5 \div (-5)$ | j | $0 \div (-3)$ |
| x | $-4.5 \div 9$ | kh | $0.25 \div \left(-\frac{1}{4}\right)$ | d | $-0.81 \div (-0.9)$ |
| r | $11.1 \div (-0,3)$ | s | $0.08 \div (-0.001)$ | | |
- 2 Isu qeybi kuwa soo socda.
- | | | | | | |
|----------|--|-----------|--|-----------|--|
| b | $1.5 \div (-3)$ | t | $-20 \div (-2)$ | j | $\frac{-50}{25}$ |
| x | $-45 \div (-9)$ | kh | $-\frac{7}{9} \div \left(\frac{-14}{3}\right)$ | d | $\frac{7}{10} \div \left(\frac{14}{25}\right)$ |
| r | $\frac{-5}{8} \div \left(\frac{-5}{16}\right)$ | s | $25.7 \div (-0.019)$ | sh | $-89.5 \div (-8.9)$ |
- 3 Xisaabi mid kasta kuwaa soo socda.
- | | | | | | |
|----------|------------------------------|-----------|---|----------|-------------------|
| b | $(11 + 7) \div (-3)$ | t | $-\frac{1}{2} - 5 \div 2$ | j | $5 + 8 \div (-4)$ |
| x | $-6 \div 2 - 82$ | kh | $18 \div (-9 + 3)$ | | |
| d | $(1.2 - (-2.4)) \div (-0.4)$ | r | $-0.2 \times (-0.3) \div 0.8 \times (-0.7)$ | | |
- 4 Fududee ilaa heerka ugu dambeeya Hadday suurogal tahay.
- | | | | | | | | |
|----------|------------------|----------|------------------|----------|-------------------|----------|------------------------------|
| b | $-\frac{27}{36}$ | t | $-\frac{25}{40}$ | j | $-\frac{24}{-60}$ | x | $\frac{-2ab}{a}; (a \neq 0)$ |
|----------|------------------|----------|------------------|----------|-------------------|----------|------------------------------|
- 5 Ku keen tusaale tusaya inaanay isu qaybintu tirooyin lakab ku sax ahayn:
- | | | | |
|----------|--------------------------|----------|-----------------------|
| b | Astaanta kala hormarinta | t | astaanta hormogalinta |
|----------|--------------------------|----------|-----------------------|

🔑 Ereyada Muhiimka ah

🔑 Qiima sugan	🔑 Asal-madoorshaha isugeynta
🔑 Harsanaan fanata	🔑 Astaanta hormagalinta
🔑 Harsanaan degata	🔑 Astaanta kala dhigga
🔑 Ka wayn	🔑 Abyooneyaal
🔑 Ka yar	🔑 Asal-madoorshaha isku dhufashada
🔑 Tirooyin lakab taban	🔑 Lid
🔑 Saami	🔑 Tirooyin lakab
🔑 Astaanta kala hormarinta	🔑 Rogaalka (weydaarka) isu geynta
🔑 Rogaalka xisaabfal (fal)	🔑 Jajab
🔑 Tirooyin idil	🔑 Tirooyin tirsiimo
🔑 Togan	

📁 Koobista Cutubka

- 1 Isugeynta, iskudhufashada iyo isuqeybinta waxay ku shaqeeya tirooyinka lakab ee togan laakiin kala goyntu kuma shaqeeyso.
- 2 Isugeynta, kala goynta, iskudhufashada iyo isuqeybintu waxay ku shaqeeyaan ururka tirooyin lakab. (0 wuu ka reeban yahay)
- 3 Lidka tiro lakab kastoo a waa $-a$, 0 isaga ayaa lid isku ah.
- 4 $\mathbb{N} \subseteq \mathbb{W} \subseteq \mathbb{Q}$
- 5 Ururka tirooyinka lakab, \mathbb{Q} waxa loo qeexaa

$$\mathbb{Q} = \left\{ \frac{a}{b} : a, b \in \mathbb{Z} \text{ islamarkaa } b \neq 0 \right\}$$
- 6 Qiimaha sugan ee tiro waa fogaanta u dhaxaysa barta unnugga iyo bar dul dhacda xariiq tiro korkeed.

t Astaanta hormogalinta

$$\text{i} \quad (a + b) + c = a + (b + c) \quad \text{ii} \quad (a \times b) \times c = a \times (b \times c)$$

j Astaanta asal madoorshaha.

$$\text{i} \quad a + 0 = 0 + a = a \quad \text{ii} \quad a \times 1 = 1 \times a = a$$

20 Tirooyin lakab kastoo, a , b , iyo c ah

$$a \times (b + c) = (a \times b) + (a \times c).$$

Tan waxaa loo yaqaanaa Astaanta kala dhigga iskudhufashada ee isu geynta.

? Lylisyada guud ee Cutubka 1^{aad}

1 Raadi lidka tirooyin lakab kasta.

$$\text{b} \quad -4.8 \quad \text{t} \quad 0 \quad \text{j} \quad |-6| \quad \text{x} \quad -3\frac{1}{8}$$

2 Raadi qiimaha. Sugan, fududee hadday suuragal tahay.

$$\text{b} \quad |-1.85| \quad \text{t} \quad |\sqrt{2} - 2|$$

$$\text{j} \quad |a - b| \text{ haddii } a < b \quad \text{x} \quad |-1.2| + |-2.8|$$

$$\text{kh} \quad \left| 2\frac{1}{3} \right| - 1 - |1.5|$$

3 ku qiimee tibaax kasta qiimaha lagu siiyey.

$$\text{b} \quad |4x| - |x|; x = -5 \quad \text{t} \quad |2| - 2x - 4|x|; x = -\frac{1}{2}$$

4 U qor kuwa soo socda mid kasta horsanaan fanata.

$$\text{b} \quad -1, 2, -1, -2, 3, 1,001, -0.001, -\frac{1}{2}, -\frac{2}{3}$$

$$\text{t} \quad -\frac{1}{2}, -\frac{2}{3}, \frac{1}{4}, 0.75, -1.25, 0.125, \frac{2}{3}$$

5 Ka shaqee xisaab faladan soo socda.

b $\frac{27}{8} + \left(-\frac{9}{4}\right)$ **t** $-\frac{81}{19} + \frac{1}{38}$ **j** $-4.1 \times (1.2 - 0.8)$

x $-13.8 + (-1.11) + 8.9$ **kh** $\frac{36}{13} \div \left(-\frac{1}{39}\right)$ **d** $\frac{3}{4} \times (-12 + (-2))$

r $(-0.8) \times (0.7) \times \left(-\frac{8}{5}\right)$ **s** $(-3) \times (-8) \times (1.2) \times (-0.1)$

6 Kashaqee xisaab faladala tilmaamay.

b $4(-1)(5) + (-3)(2)(-4)$ **t** $(-8) \div (-4) + (-3)(2)$

j $\frac{(-3)(8)(-2)}{(-4)(-8)-92}(-12)$ **x** $10 \div 5 - 4 \div 2 + 15 \div 3 + 2.5$

kh $8 + (-3) + (-5) - 9$ **d** $5.28 - 6.7 - (-4.35) + 4$

r $-5\frac{3}{8} + 2\frac{7}{8} - 1\frac{1}{8}$

7 Kala sheeg kuwa soo socdaa inay run yihiin iyo inay been yihiin.

b $(-3) + \left(-\frac{1}{2}\right) = -\frac{7}{2}$ **t** $-7 - 3 + 5 = -5$

j $-1 \times (-0.5) \times (-2) = 1$ **x** $\frac{-3}{2}(-1.2) + (-2.4) = 1.8 + 3.6$

8 Wadarta saddex abyoone oo isku xiga ayaa ah 24, Raadi abyooneyaashaas.

9 U gee taranta -8 iyo -9 taranta 17 iyo -3

10 Haddii aad ku dhufatid wadarta 3 iyo -7 doorsoomaha “y” Natijadu waa 12 .

Raadi qiimaha “y”.

11 Helikobtar ayaa 600ft ka sareysa heerka badda ee la simanka dhulka islamarkaana gujis ayaa si ku toosan ah 325ft uga hooseeyo heerka badda. Intee ayey isku jiraan?

12 Ka soo qaad Halimo iyo laba walaalo ay yihiin waxay bixiyeen lacag is le eg oo maalgalined oo dhan Birr $20,000$. Hadaba haddii ay maalgalintii ay ku gadeen lacag dhan Birr $16,232$ imisa ayaa midwalba khasaaray?