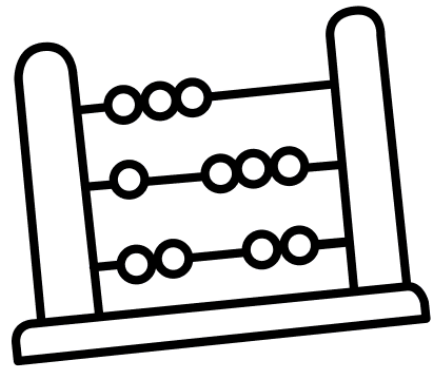


Isticmaal jaantuska Venn si aad u muujiso natiijooyinka laba dhacdo

Maths

Cutub: Itimaalka (Probability): natiijooyinka suurtagalka ah



Natiijo

Waxaan si nidaamsan u heli karaa dhammaan natiiyooyinka suurtagalka ah ee laba dhacdo adigoo isticmaalaya jaantuska Venn.

Erayada muhiimka ah

**Jaantusyada Venn waa matalaad loo isticmaalo in lagu qaabeeyo su'aalaha tirakoobka/itimaalka.
Caadi ahaan goobo ayaa loo isticmaalaa inay matalaan dhacdooyinka.**

Isticmaal jaantuska Venn si aad u muujiso natiijooyinka
laba dhacdo



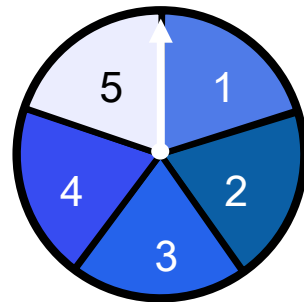
Jaantusyada Venn



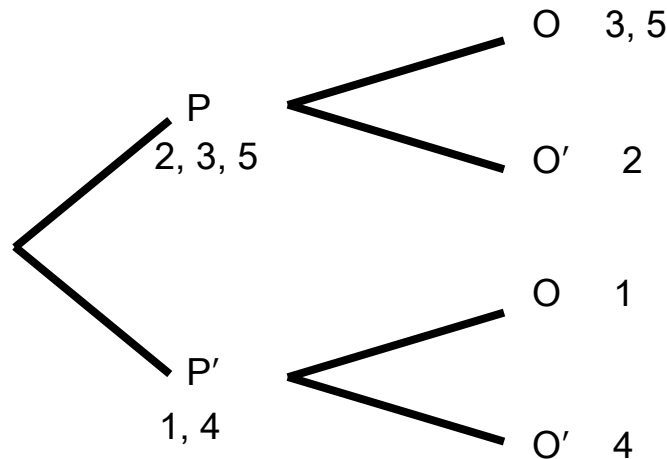
Natiijooyinka jaantusyada Venn

Marka wareejintan la wareejiyo natiijooyinka suurtagalka ah waa $\{1, 2, 3, 4, 5\}$. Waxaan ugu yeernaa booska muunadda (sample space).

Shaxda natiijada ayaa la dhigi karaa si loo kala saaro Ama geed natiijo natiijooyinka suurtagalka ah.



	tirsan (prime) (P)	aan tirsanayn (P')
tiris (odd) (O)	3 5	1
aan tiris ahayn (O') 2		4



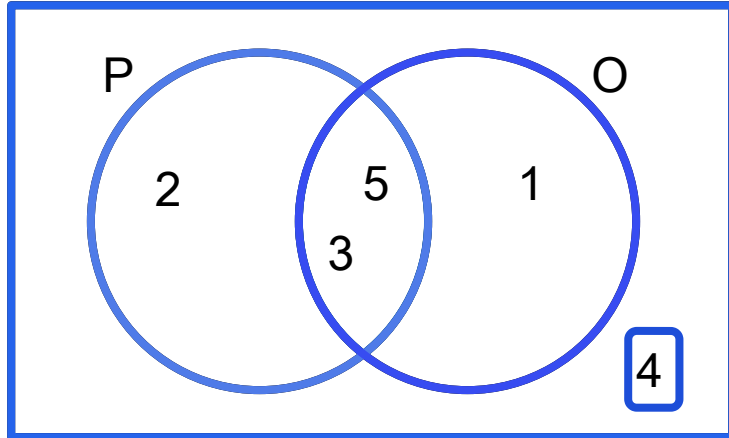
Matalaad kale waa jaantuska Venn.

Laba dhacdo waa:

$P = \{2, 3, 5\}$

$O = \{1, 3, 5\}$

$\xi = \{1, 2, 3, 4, 5\}$



	tirsan (prime) (P)	aan tirsanayn (P')
tiris (odd) (O)	3 5	1
ma aha tiro kisi 2 (O')		4

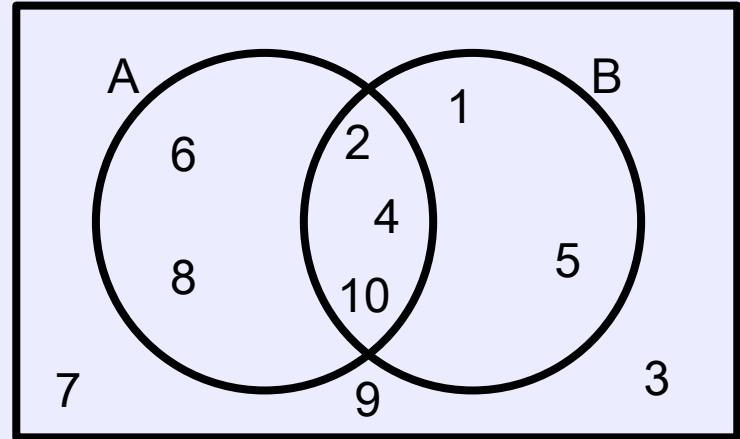
Jaantusyada Venn

Dhacdo A = {tiro siman}

Dhacdo B = {qaybiyaha 20}

Buuxi booska muunadda ee jaantuskan Venn.

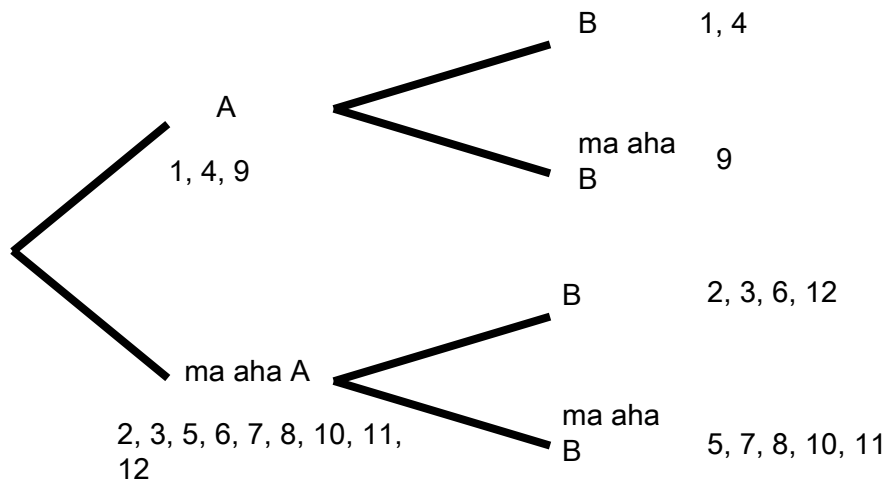
$$\xi = \{ \underline{\hspace{10em}} \}$$



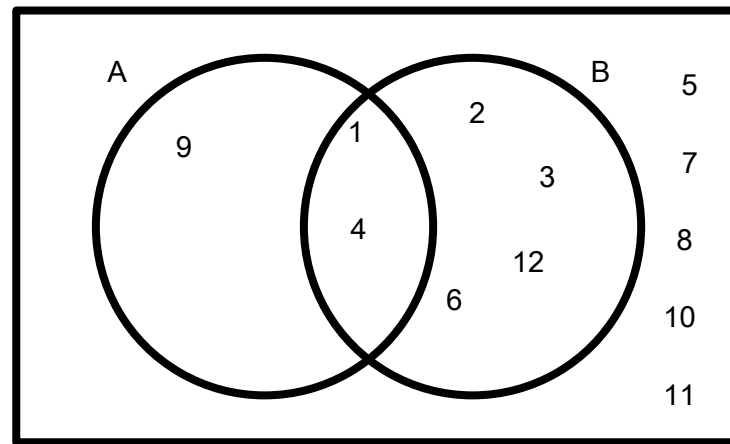
Labada dhacdo waa:

$A = \{\text{tiro labajibbaaran}\}$

$B = \{\text{qaybiyaha 12}\}$



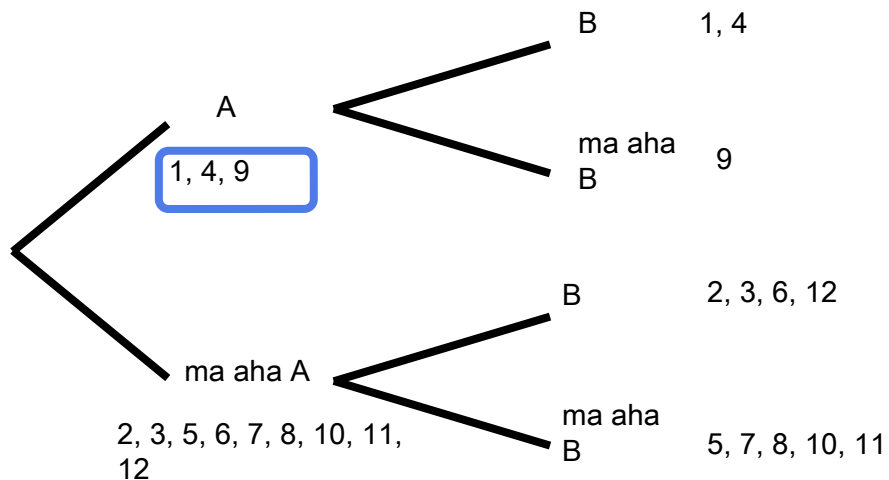
$\xi = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12\}$



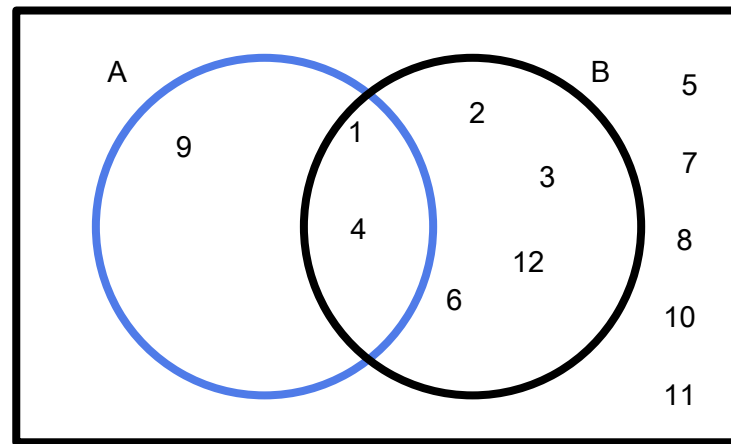
Labada dhacdo waa:

$A = \{\text{tiro labajibbaaran}\}$

$B = \{\text{qaybiyaha 12}\}$



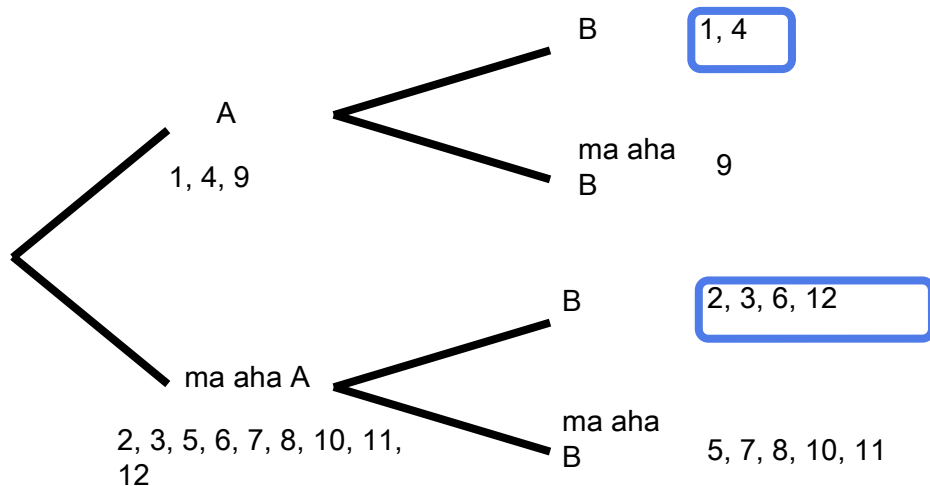
$\xi = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12\}$



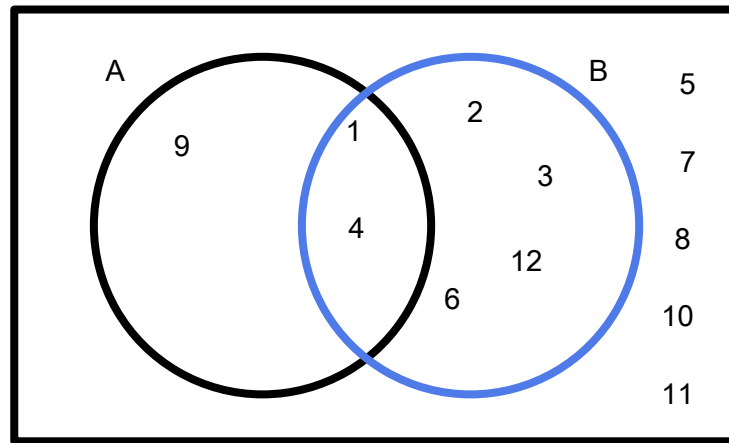
Labada dhacdo waa:

$A = \{\text{ tiro laba jibaaran (square number)}\}$

$B = \{\text{ tiro qaybsan 12 (factor of 12)}\}$



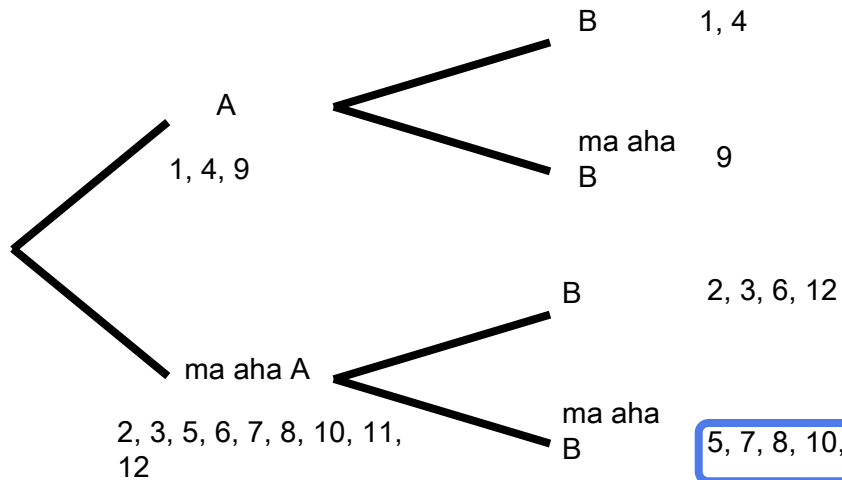
$\xi = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12\}$



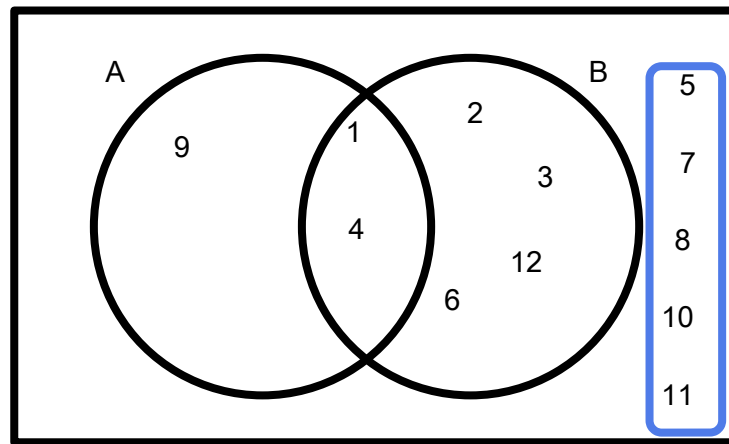
Labada dhacdo waa:

$A = \{\text{ tiro laba jibaaran (square number)}\}$

$B = \{\text{ tiro qaybsan 12 (factor of 12)}\}$



$\xi = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12\}$

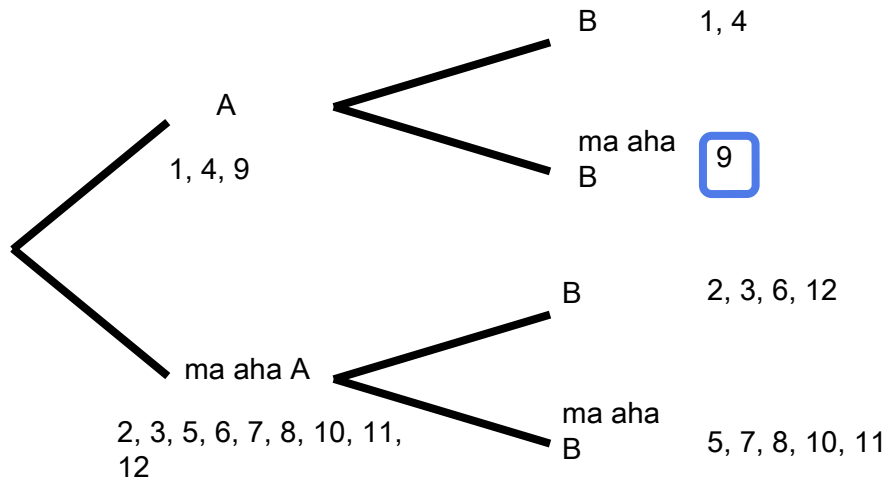


Jaantusyada Venn (Venn diagrams)

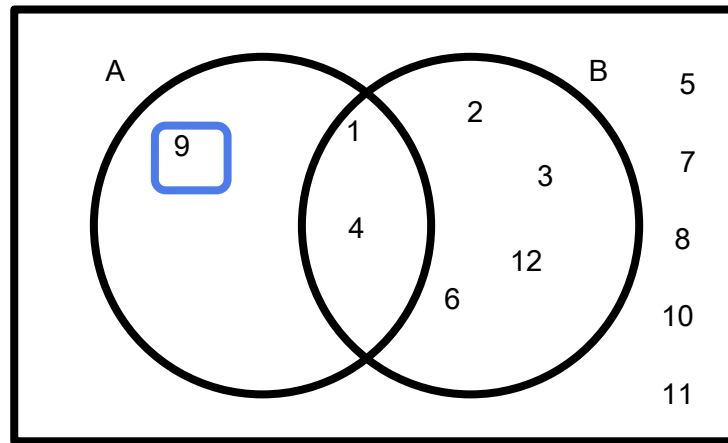
Labada dhacdo waa:

$A = \{\text{ tiro laba jibaaran (square number)}\}$

$B = \{\text{ tiro qaybsan 12 (factor of 12)}\}$



$\xi = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12\}$

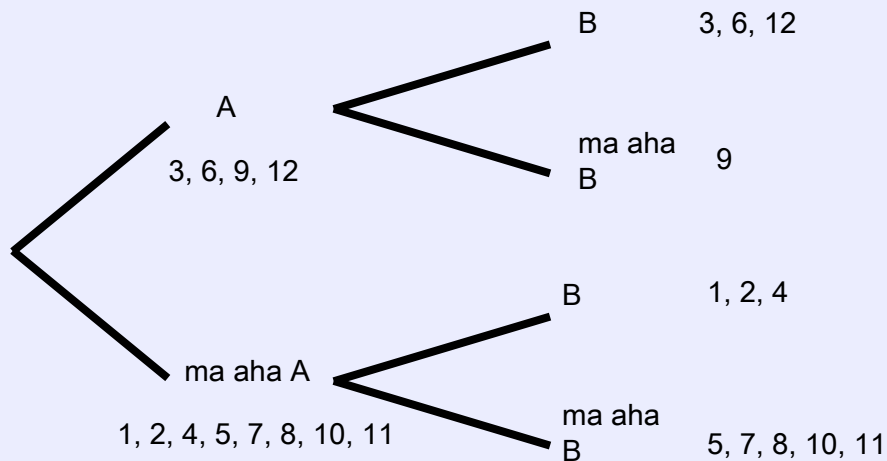


Isticmaal geedka natiijada (outcome tree) si aad u buuxiso jaantuska Venn.

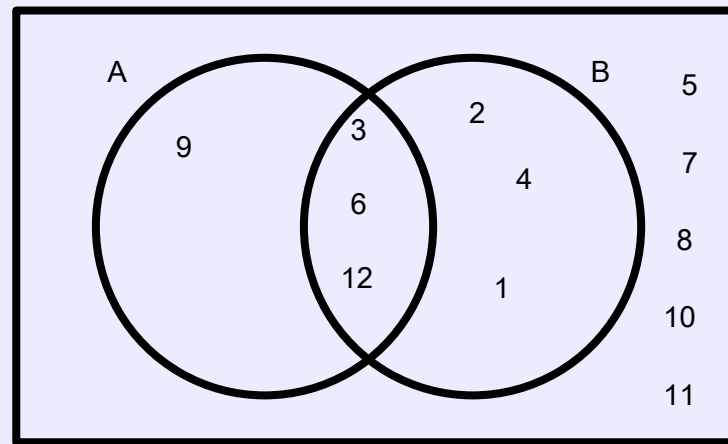
Labada dhacdo waa:

$A = \{\text{tiro badan oo } 3 \text{ (multiple of 3)}\}$

$B = \{\text{qaybiyaha } 12\}$



$\xi = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12\}$

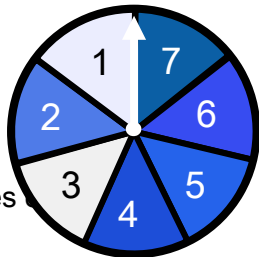


Jaantuska Venn (Venn diagram) ayaa loo isticmaali doonaa in lagu muujiyo booska shayga (sample space) wareeggan.

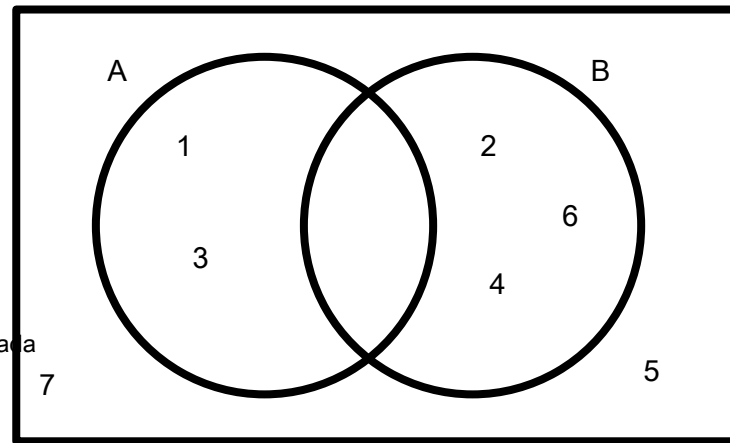
Halka ay laba dhacdo yihiin

$A = \{\text{qaybiyaha } 3\}$ iyo

$B = \{\text{tirooyinka } 2 \text{ ee isku dhufashada (multiples)}$



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



Imisa natiijooyin wadaag ah (common outcomes) ayaa u dhexeeya dhacdada A iyo dhacdada B?

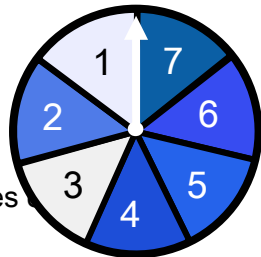
Ma jiraan natiijooyin wadaag ah, maxaa yeelay isgoysku (intersection) waa madhan.

Jaantuska Venn (Venn diagram) ayaa loo isticmaali doonaa in lagu muujiyo booska shayga (sample space) wareeggan.

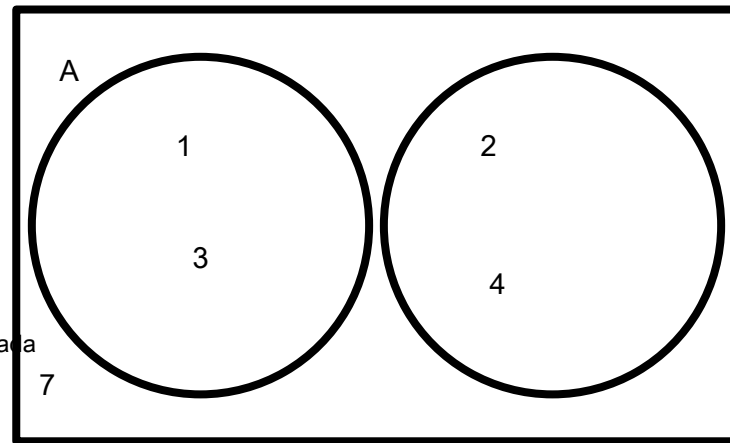
Halka ay laba dhacdo yihiin

$A = \{\text{qaybiyaha } 3\}$ iyo

$B = \{\text{tirooyinka } 2 \text{ ee isku dhufashada (multiples)}$



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



Imisa natiijooyin wadaag ah (common outcomes) ayaa u dhexeeya dhacdada A iyo dhacdada B?

Ma jiraan natiijooyin wadaag ah, maxaa yeelay isgoysku (intersection) waa madhan.

Labada goobo waxaa sidaas loo sawiri karaa.

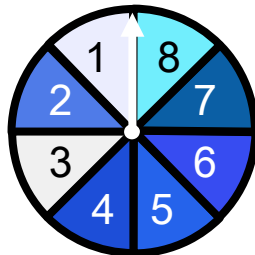
Jawaabaha:

B 6 5

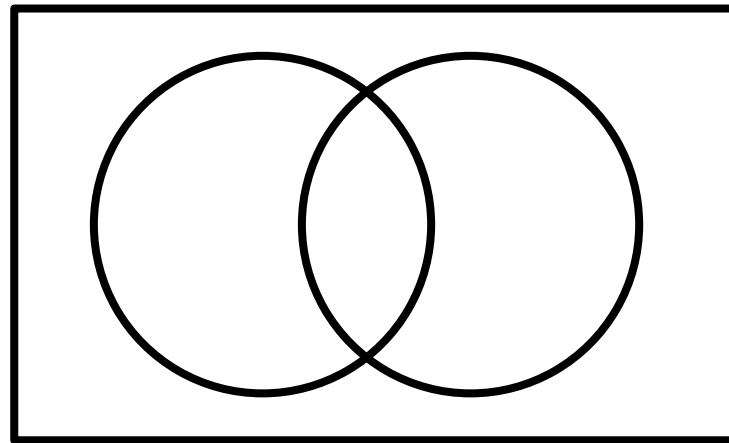
Jaantuska Venn (Venn diagram) ayaa loo isticmaali doonaa in lagu matalo meesha muunadda (sample space) ee wareeggan.

Halka laba dhacdo ay yihiin

$B = \{\text{tirooyinka 4-ka (multiples of 4)}\}$



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



Immisa ka mid ah natiijooyinka ayaa kaliya ku jira dhacdada B?

Dhammaan natiijooyinka dhacdada B waxay sidoo kale yihiin natiijooyinka dhacdada A, marka ma jiraan natiijooyin kaliya ku jira dhacdada B.

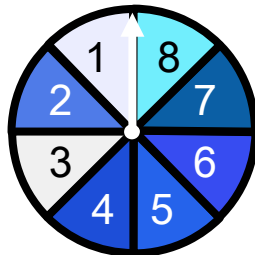
Jawaabaha:

A B A = {xita (even)} iyo 2 4 6 8 7 1 5 3

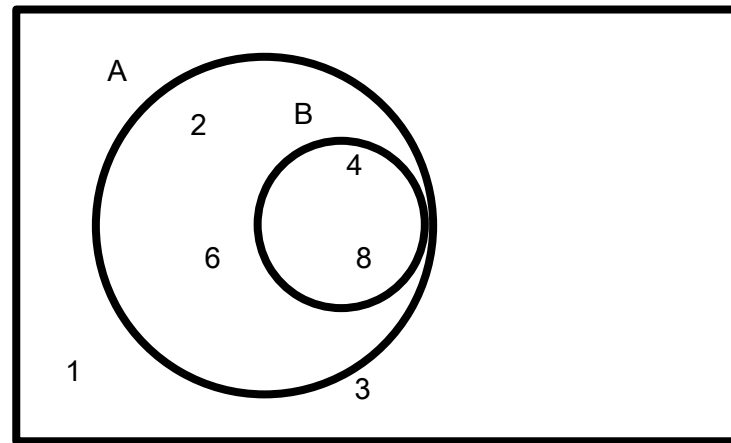
Jaantuska Venn (Venn diagram) ayaa loo isticmaali doonaa in lagu matalo meesha muunadda (sample space) ee wareeggan.

Halka laba dhacdo ay yihiin

$B = \{\text{tirooyinka 4-ka (multiples of 4)}\}$



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



Immisa ka mid ah natiijooyinka ayaa kaliya ku jira dhacdada B?

Dhammaan natiijooyinka dhacdada B waxay sidoo kale yihiin natiijooyinka dhacdada A, marka ma jiraan natiijooyin kaliya ku jira dhacdada B.

Labada goobo waxaa sidaas darteed loo sawiri karaa sidan.

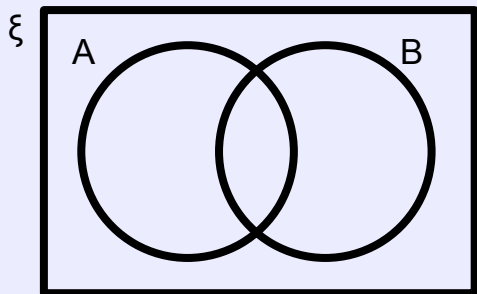
Jawaabaha:

$A = \{\text{xitaa (even)}\}$ iyo

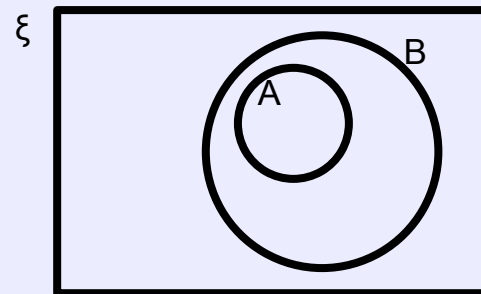
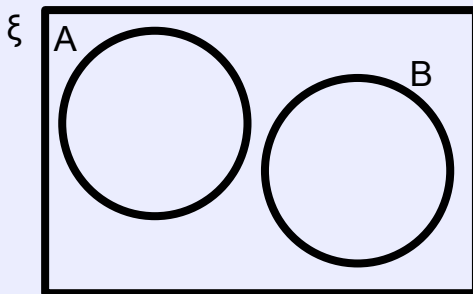
7

5

Kee ka mid ah jaantusyadan Venn (Venn diagrams) ayaa sax ah in loo isticmaalo tijaabada lagu rogayo dheg lix-geesood ah oo cadaalad ah, halka $A = \{\text{tirooyinka 2-ga (multiple of 2)}\}$ iyo $B = \{\text{tiro khariij ah (odd number)}\}$?



Isgoysku (intersection) wuxuu noqon doonaa madhan.



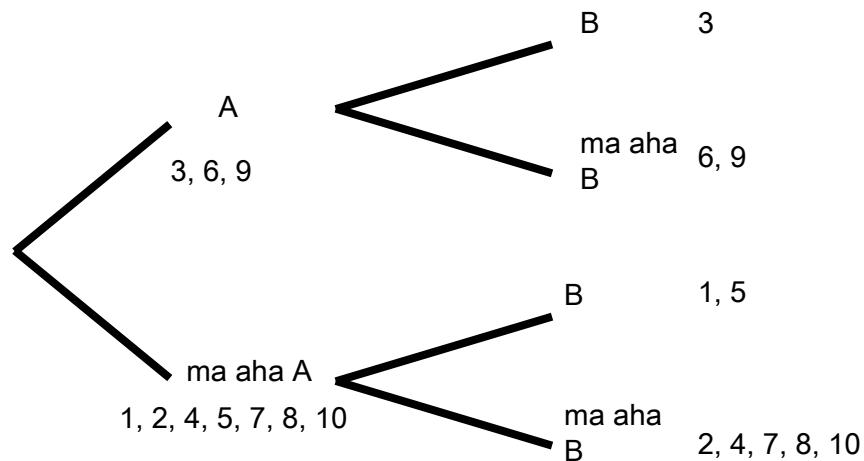
Ma jiraan tirooyin 2-ga ah oo sidoo kale khariij ah.

1) Halkan waxaa ah geed natiijo (outcome tree) laba dhacdo. Sawir jaantus Venn (Venn diagram) si aad u muujiso macluumaadka isku midka ah.

Labada dhacdo (event) waa:

$A = \{\text{tiro badan oo } 3 \text{ (multiple of 3)}\}$

$B = \{\text{qaybiyaha } 15 \text{ (factor of 15)}\}$



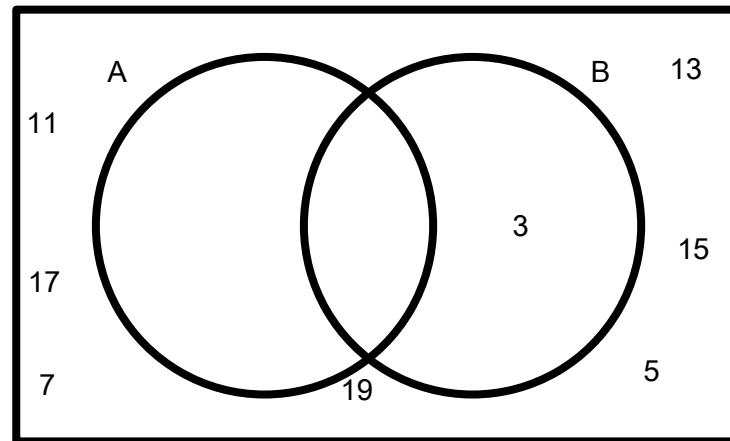
2) Halkan waxaa ku yaal shax natiijo (outcome table) oo laba dhacdo (event) ah. Sawir jaantus Venn (Venn diagram) oo muujinaya macluumaad isku mid ah.

	tiro asli ah (prime number) (P)	ma aha tiro asli (P')
qaybiyaha 30 (factor of 30) (F)	2 3 5	1 6 10 15
ma aha qaybiyaha 30 (F')	7 11 13	4 9 8 12 14

3) Halkan waxaa ku yaal shax natiijo (outcome table) oo qayb ahaan dhammaystiran iyo jaantus Venn (Venn diagram). Dhammaystir labada jaantus.

	 (A)	ma aha tiro laba jibaaran (square number) (A')
qaybiyaha 18 (factor of 18) (B)	1 9	
ma aha qaybiyaha 18 (B')		5 7 11 13 15 17 19

$\xi = \{1, 3, 5, 7, 9, 11, 13, 15, 17, 19\}$

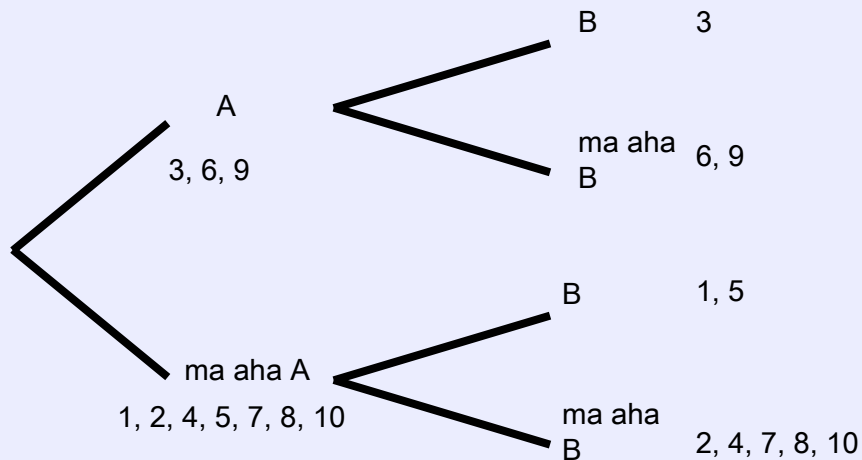


1) Halkan waxaa ku yaal geed natiijo (outcome tree) oo laba dhacdo (event) ah. Sawir jaantus Venn (Venn diagram) oo muujinaya macluumaad isku mid ah.

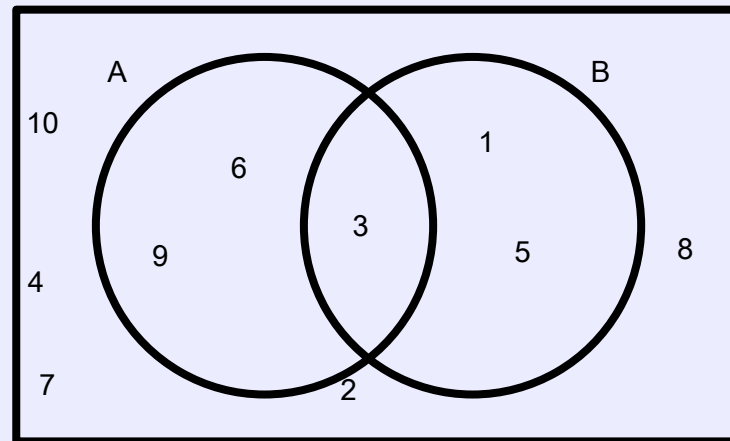
Labada dhacdo (event) waa:

$A = \{\text{tiro badan oo } 3 \text{ (multiple of 3)}\}$

$B = \{\text{qaybiyaha } 15 \text{ (factor of 15)}\}$



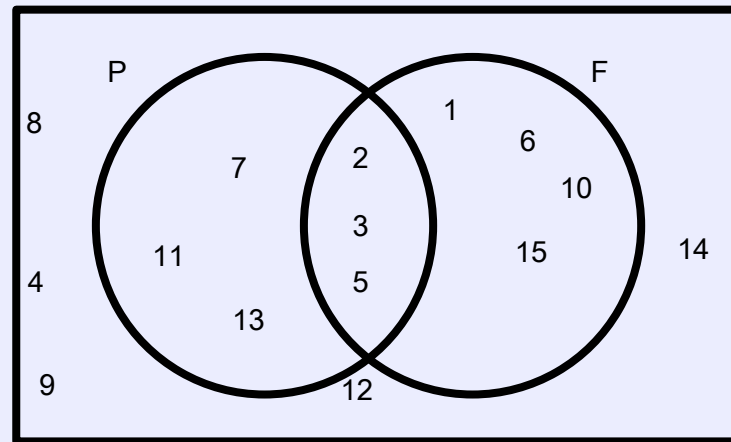
$\xi = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$



2) Halkan waxaa ah shax natiijo ah oo laba dhacdo ah. Sawir jaantus Venn si aad u muujiso macluumaadka isku midka ah.

	tiro asal ah (P)	ma aha tiro asal (P')
tiro qaybisa 30 (F)	2 3 5	1 6 10 15
ma aha tiro qaybisa 30 (F')	7 11 13	4 9 8 14 12

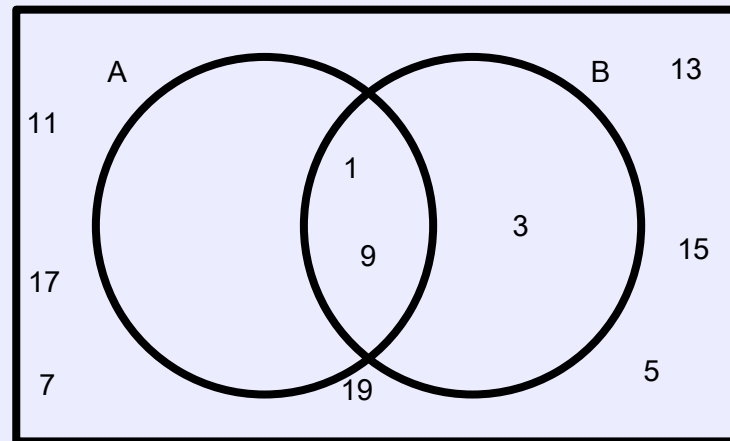
$$\xi = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15\}$$



3) Halkan waxaa ah shax natiijo iyo jaantus Venn oo qayb ahaan dhammaystiran. Dhammaystir labada jaantus.

	tiro labajibbaaran (A)	ma aha tiro labajibbaaran (A')
tiro qaybisa 18 (B)	1 9	3
ma aha tiro qaybisa 18 (B')		5 7 11 13 15 17 19

$$\xi = \{1, 3, 5, 7, 9, 11, 13, 15, 17, 19\}$$



Isticmaalka jaantuska Venn si loo muujiyo natiijooyinka
laba dhacdo



Jaantusyada Venn (Venn diagrams)



Natiijooyinka ka yimaada jaantusyada Venn

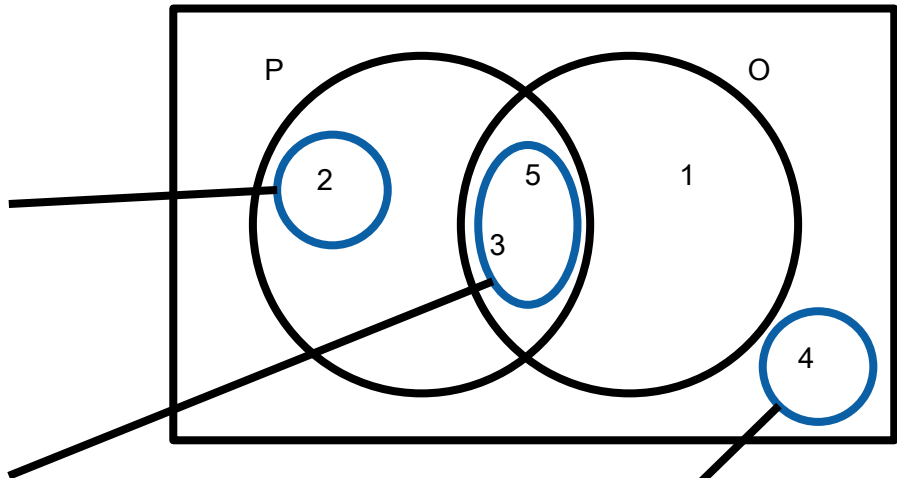
Halkan waxaa ah jaantus Venn oo laba dhacdo P iyo O, halkaasoo:

$$P = \{2, 3, 5\}$$

$$O = \{1, 3, 5\}$$

$$\xi = \{1, 2, 3, 4, 5\}$$

$\{2\}$ waa kaliya tiro asal



$\{3, 5\}$ labaduba waa tiro (prime) iyo tiro (odd)

$\{4\}$ ma aha tiro asal mana aha tiro khasaale

Natijoooyinka (outcomes) laga helay jaantusyada Venn (Venn diagrams)

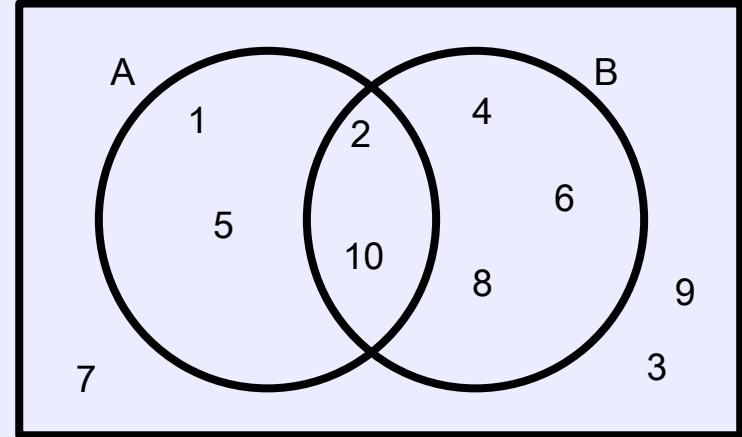
Dhacdo A = {tirooyinka (factors) ee 10}

Dhacdo B = {tirooyinka siman (even numbers)}

Natijoooyinka (outcomes) kee baa ku jira dhacdo A iyo dhacdo B labadaba?

{2, 10}

$\xi = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$



Natijoooyinka (outcomes) laga helay jaantusyada Venn (Venn diagrams)

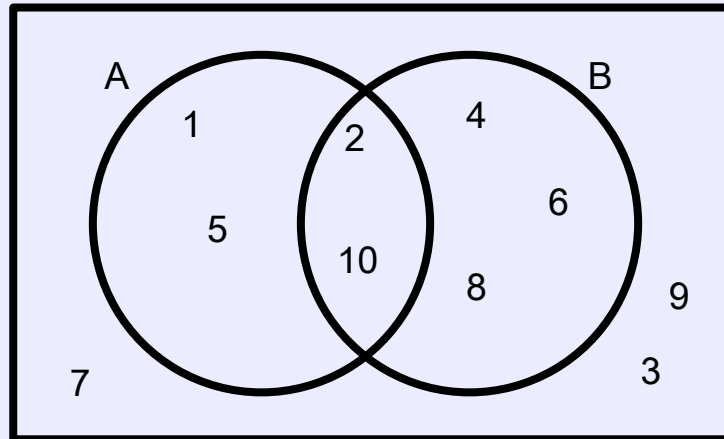
Dhacdo A = {tirooyinka (factors) ee 10}

Dhacdo B = {tirooyinka siman (even numbers)}

Natijoooyinka (outcomes) kee baa aan ku jirin dhacdo A iyo dhacdo B midna?

{3, 7, 9}

$\xi = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$



Natijoooyinka (outcomes) laga helay jaantusyada Venn (Venn diagrams)

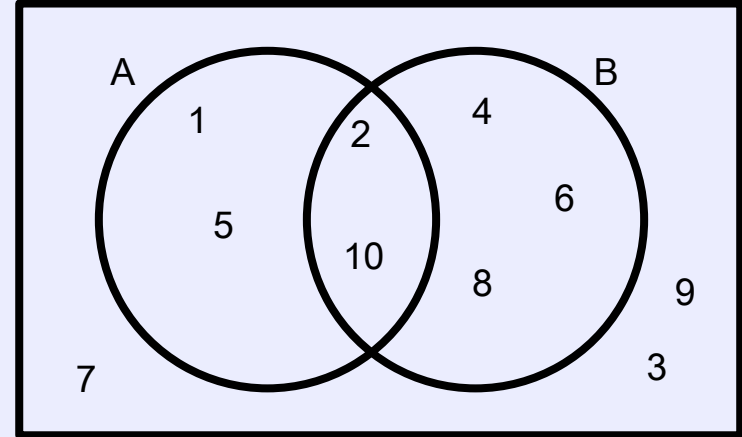
Dhacdo A = {tirooyinka (factors) ee 10}

Dhacdo B = {tirooyinka siman (even numbers)}

Natijoooyinka (outcomes) kee baa ku jira dhacdo A ama dhacdo B midkood?

{1, 2, 4, 5, 6, 8, 10}

$\xi = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$

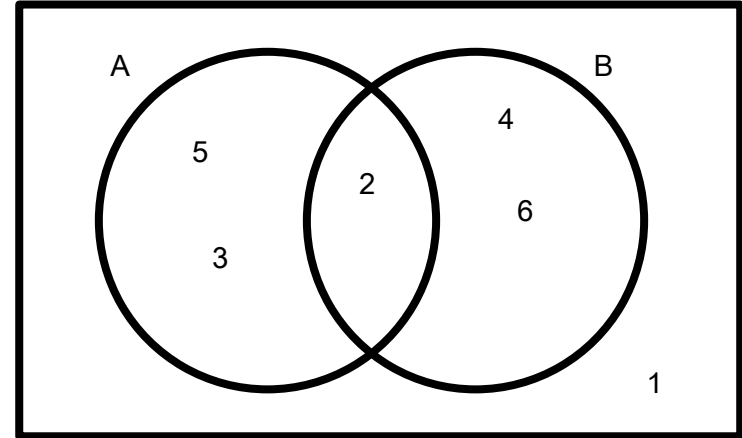


Jaantuska Venn (Venn diagram) waa la dhammeeyey laba dhacdo, A iyo B.

$$\xi = \{1, 2, 3, 4, 5, 6\}$$

Waxaan ka aiki karnaa jaantuska Venn (Venn diagram)

• in ay jiraan 3 natiiyo (outcomes) oo ku jira dhacdo A
• in ay jiraan 3 natiiyo (outcomes) oo ku jira dhacdo B
• in ay jirto 1 natiiyo (outcome) oo wadaaga ah dhacdo A iyo dhacdo B
• in ay jirto 1 natiiyo (outcome) oo aan ku jirin dhacdo A iyo dhacdo B midna



Natiijooyinka (outcomes) laga helay jaantusyada Venn (Venn diagrams)

Jaantuska Venn (Venn diagram) waa la dhammeeyey laba dhacdo, A iyo B.

Taxo natiijooyinka ku jira dhacdada A.

$$A = \{2, 3, 5\}$$

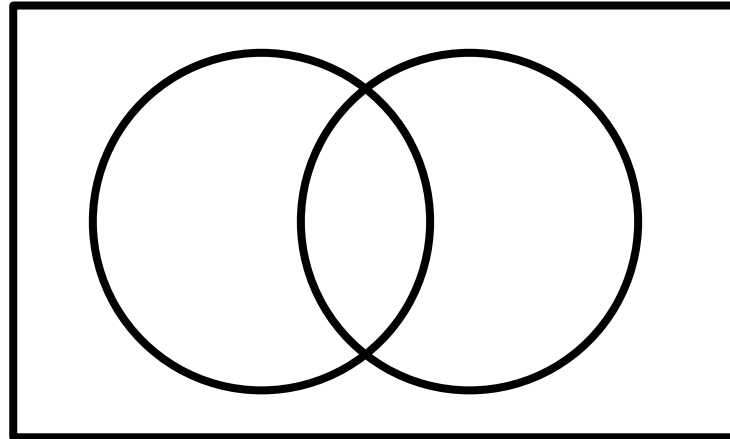
Taxo natiijooyinka ku jira dhacdada B.

$$B = \{2, 4, 6\}$$

Taxo natiijooyinka ku jira dhacdada A iyo dhacdada B labadaba.

$$A \text{ iyo } B = \{2\}$$

$$\xi = \{1, 2, 3, 4, 5, 6\}$$



Jawaabaha:

A B 4 5 2 6 3 1

Buuxi meelaha bannaan.

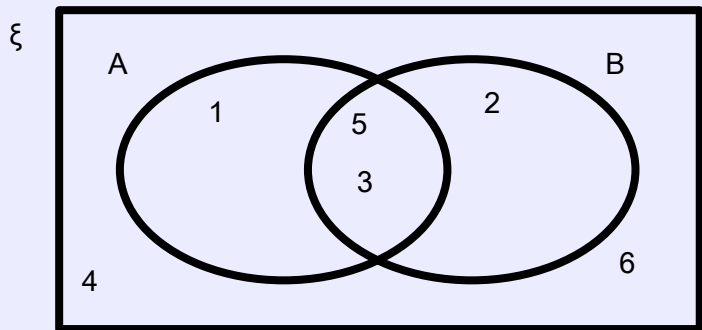
Jaantuska Venn wuxuu muujinayaa in ay jiraan:

- natijoooyin ku jira dhacdada A
- natijoooyin ku jira dhacdada A iyo B
- natijoooyin aan ku jirin dhacdada A ama dhacdada B

3

2

2



1) Isticmaal jaantuskan Venn si aad uga jawaabto su'aalahan soo socda:

a) Taxo natiijooyinka ku jira dhacdada A.

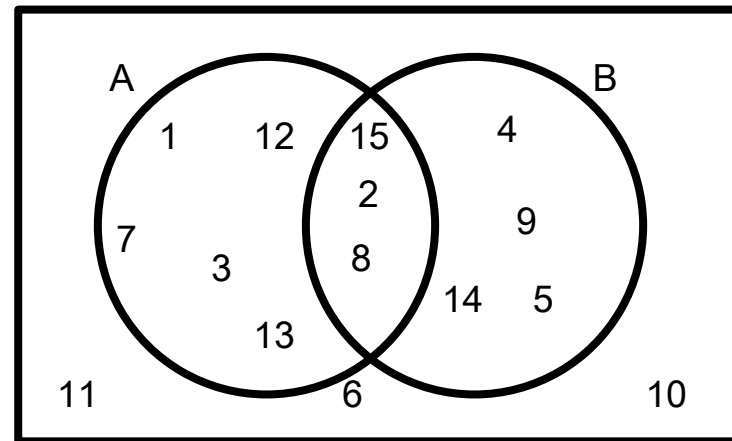
$\xi = \{\text{qiimayaasha tirooyinka (integers) laga bilaabo 1 ilaa 15 oo ay ku jiraan}\}$

b) Taxo natiijooyinka ku jira dhacdada B.

c) Taxo natiijooyinka ku jira dhacdada A iyo dhacdada B labadaba.

d) Taxo natiijooyinka ku jira dhacdada A laakiin aan ku jirin dhacdada B.

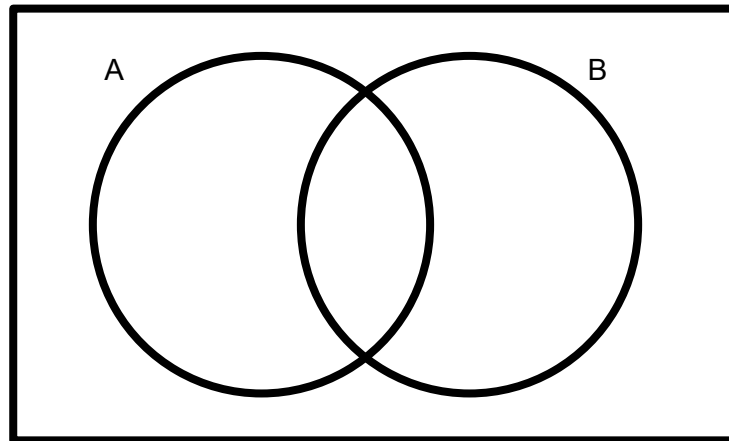
e) Taxo natiijooyinka aan ku jirin dhacdada A iyo dhacdada B midna.



2) a) Isticmaal macluumaadka soo socda si aad u dhamaystirto jaantuska Venn.

- natijoooyinka suurtagalka ah ee tijaabada waa tirooyinka (integers) laga bilaabo 1 ilaa 10 oo ay ku jiraan
- waxaa jira shan natijo oo suurtagal ah oo loogu talagalay dhacdada A
- {6} waa natijada kaliya ee labada dhacdo (events)
- {2, 5, 8} ma aha natijoooyinka dhacdada A iyo dhacdada B midna
- natijoooyinka ku jira dhacdada B oo kaliya waa tiro koowaad (prime)

$\xi =$

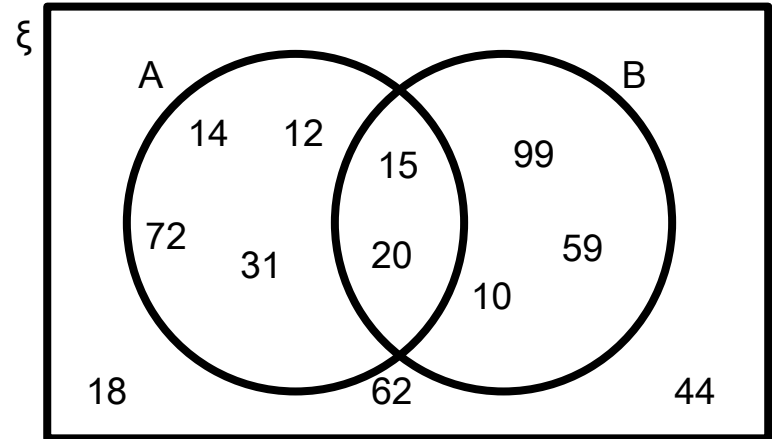


b) Liis garay natijoooyinka dhacdada A.

c) Liis garay dhammaan natijoooyinka dhacdada A ama dhacdada B ama labadaba.

3) Isticmaal jaantuska Venn si aad uga jawaabto su'aalaha soo socda:

- a) Immisa natiijood ayaa ku jira booska muunadda (sample space)?
- b) Immisa natiijood ayaa ku jira dhacdada A?
- c) Immisa natiijood ayaa ku jira dhacdada B?
- d) Immisa natiijood ayaan ku jirin dhacdada A ama dhacdada B?



e) Sharax sababta jawaabahaaga qaybaha b, c iyo d aan ugu soo koobin qaybta a.

1) Isticmaal jaantuska Venn si aad uga jawaabto su'aalaha soo socda:

a) Liis garay natiijooyinka ku jira dhacdada A.

{1, 2, 3, 7, 8, 12, 13, 15}

b) Liis garay natiijooyinka ku jira dhacdada B.

{2, 4, 5, 8, 9, 14, 15}

c) Liis garay natiijooyinka ku jira labada dhacdo (event A iyo event B).

{2, 8, 15}

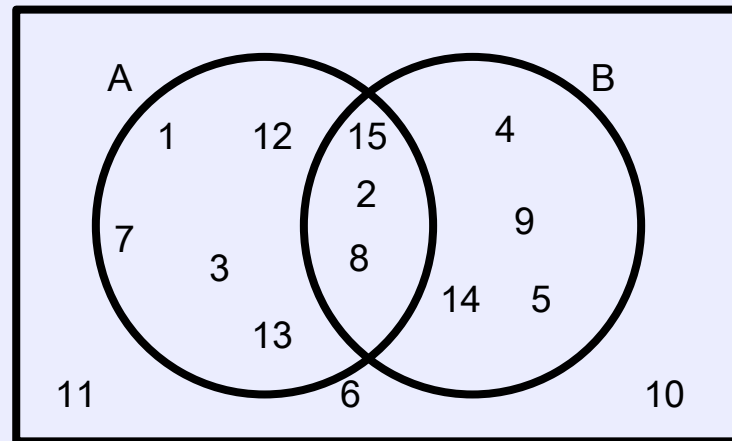
d) Liis garay natiijooyinka ku jira dhacdada A laakiin aan ku jirin dhacdada B.

{1, 3, 7, 12, 13}

e) Liis garay natiijooyinka aan ku jirin dhacdada A iyo dhacdada B midna.

{6, 10, 11}

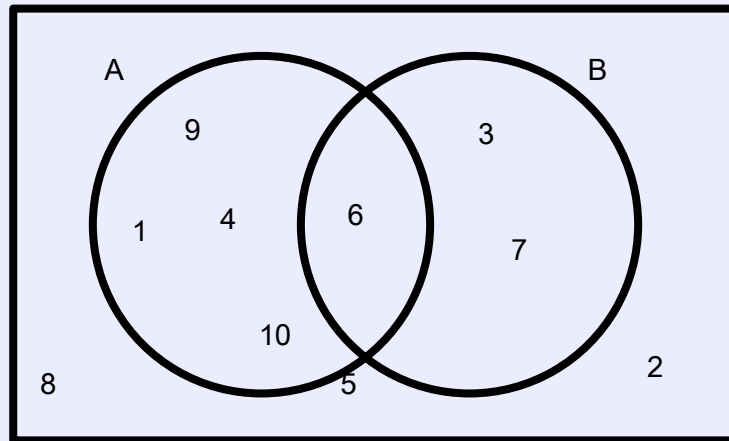
$\xi = \{\text{qiimayaasha tiro (integer) laga bilaabo 1 ilaa 15 oo ay ku jiraan}\}$



2) a) Isticmaal macluumaadka soo socda si aad u dhamaystirto jaantuska Venn.

- Natijjooyinka suurtagalka ah ee tijaabada waa tirooyinka 1 ilaa 10 oo ay ku jiraan
- Waxaa jira shan natiiyo oo suurtagal ah oo dhacdada A
- {6} waa natijada kaliya ee labada dhacdo
- {2, 5, 8} ma aha natijjooyin dhacdada A iyo dhacdada B midna
- Natijjooyinka ku jira dhacdada B oo kaliya waa tirooyin asal ah (prime)

$$\xi = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$$



b) Liis garay natijjooyinka dhacdada A.

{1, 4, 6, 9, 10}

c) Liis garay dhammaan natijjooyinka dhacdada A ama dhacdada B ama labadaba.

{1, 3, 4, 6, 7, 9, 10}

3) Isticmaal jaantuskan Venn si aad uga jawaabto su'aalahan soo socda:

a) Immisa natiijo ayaa ku jira meesha muunadda (sample space)?

12 natiijo

b) Immisa natiijo ayaa ku jira dhacdada A?

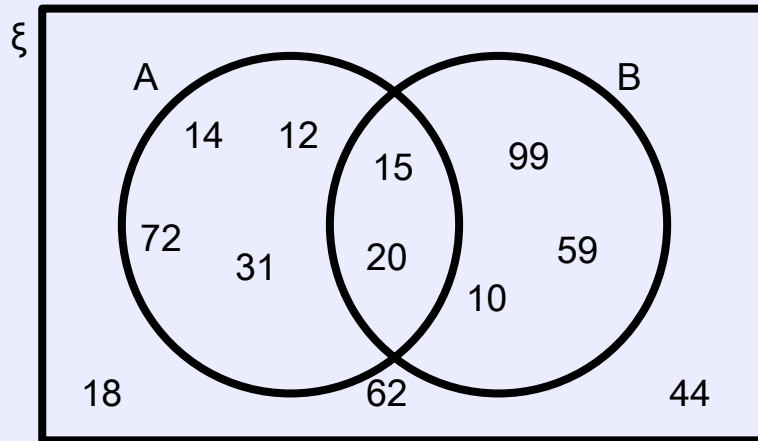
6 natiijo

c) Immisa natiijo ayaa ku jira dhacdada B?

5 natiijo

d) Immisa natiijo ayaan ku jirin dhacdada A ama dhacdada B?

3 natiijo



e) Sharax sababta jawaabahaaga qaybaha b, c iyo d aysan ku darin qaybta a.

Waxaa jira laba natiijo oo ku jira dhacdada A iyo dhacdada B labadaba, marka waxaa lagu tiriyaa laba jeer wadarta.

Soo koobid

Isticmaalka jaantuska Venn si loo muujiyo natiijooyinka laba dhacdo

Jaantusyada Venn (Venn diagrams) waxay muujin karaan natiijooyinka laba dhacdo.

Shaxda natiijooyinka iyo geedka natiijooyinka waxaa loo isticmaali karaa in lagu soo saaro jaantus Venn.

Jaantusyada Venn waxaa loo isticmaali karaa in lagu soo saaro shaxda natiijooyinka iyo geedka natiijooyinka.