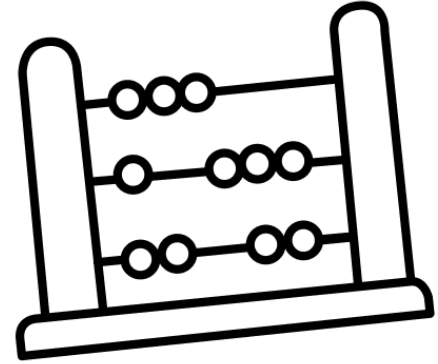


**Isbarbardhigga matalaadyo badan si loo xisaabiyo
ixtimaalka (probability) aragtida ee dhacdooyinka isku
dhafan**



Maths

Cutub: Ixtimaalka (Probability): ixtimaalka aragtida

Natiijo

Waxaan awood u leeyahay inaan isbarbardhigo oo aan ka soo horjeediyo waxtarka matalaadyo kala duwan marka la xisaabinayo ixtimaalka (probability) aragtida ee dhacdooyinka isku dhafan.

Erayada muhiimka ah

Laha kasta oo ka mid ah geerka idimaalka (probability tree) wuxuu muujinayaa natiijo suurtagal ah oo ka timaadda dhacdo ama marxalad tijaabo ah, iyadoo la raaciyo idimaalka (probability) dhacdooyinkaas.

Meel saami ah (sample space) waa dhammaan natiijooyinka suurtagalka ah ee tijaabo. Jaantuska meel saami ah (sample space diagram) waa hab habaysan oo lagu soo saaro meel saami ah.

Jaantusyada Venn (Venn diagrams) waa matalaad loo isticmaalo qaabaynta su'aalaha tirakoobka/idimaalka. Caadi ahaan goobo ayaa loo isticmaalaa inay matalaan dhacdooyinka.

Qaabka casharka

Isbarbardhigga matalaadyo badan si loo xisaabiyo ixtimaalka
(probability) aragtida ee dhacdooyinka isku dhafan



Muujiinta tijaabooyin laba heer ah oo ku kala duwan jaantusyo



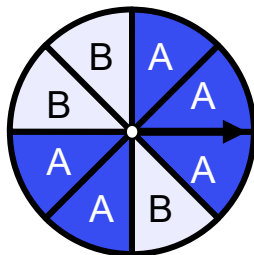
Qoraallo ku saabsan dhacdooyinka jaantusyo kala duwan

Tijaabo: wareegiyaha 1
iyo wareegiyaha 2 ayaa la
wareejiyay hal mar
midkiiba.

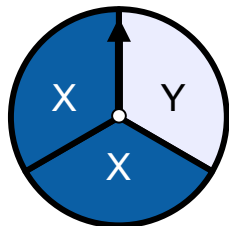
Waan ogahay sida loo helo ixtimaalka
(probability) natiijo kasta oo ka mid ah
tijaabadan aniga oo isticmaalaya shaxda
natiijooyinka!



Nuur



wareegiyaha 1



wareegiyaha 2

natiijooyinka wareegiyaha 1

	A	A	A	A	A	B	B	B
X	XA	XA	XA	XA	XA	XB	XB	XB
X	XA	XA	XA	XA	XA	XB	XB	XB
Y	YA	YA	YA	YA	YA	YB	YB	YB

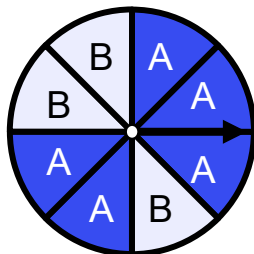
natiijooyinka wareegiyaha 2 meel saami ah (sample space) ee tijaabadan laba heerka ah

Muuujinta tijaabooyin laba-wareeg ah oo jaantusyo kala duwan laga soo qaatay

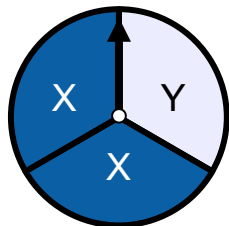


Sharaxaad

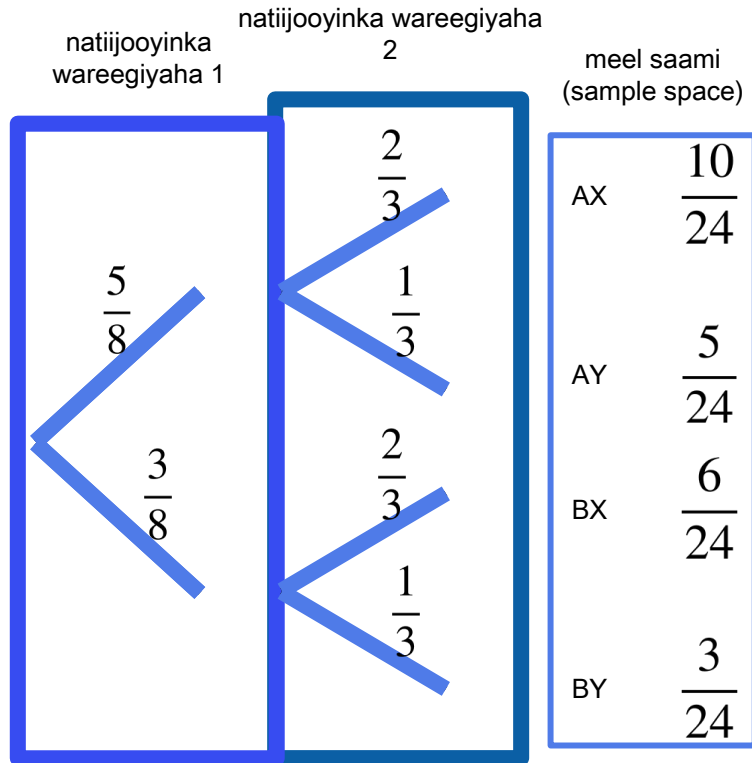
Tijaabo: wareejiyaha 1 iyo wareejiyaha 2 ayaa hal mar la wareejin doonaa mid kasta.



wareejiyaha 1



wareejiyaha 2

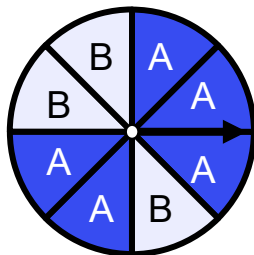


Isla tijaabada laba-wareeg ah waxaa lagu muujin karaa geed itimaal (probability tree).

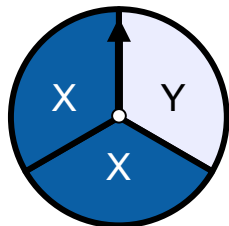
Lakab kasta oo laamo ah wuxuu u taagan yahay hal wareeg oo tijaabada ah.

Itimaalka (probability) natiijo kasta oo ku jirta meesha saami (sample space) waa isku dhufashada itimaalka (probability) labada laamood ee u horseeda natiijadaas.

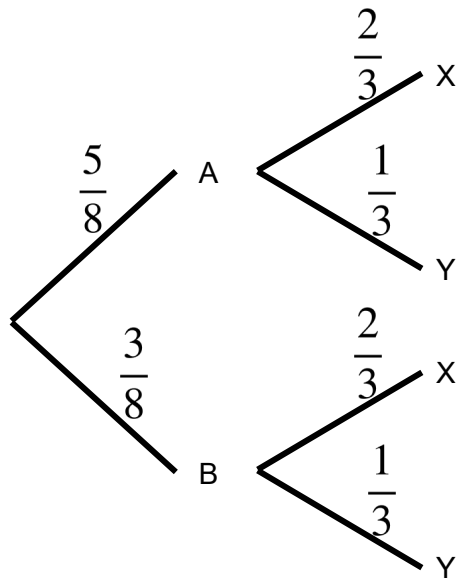
Tijaabo: wareejiyaha 1 iyo
wareejiyaha 2 ayaa hal
mar la wareejin doonaa
mid kasta.



wareejiyaha 1



wareejiyaha 2



meel saami
(sample space)

AX	$\frac{10}{24}$
AY	$\frac{5}{24}$
BX	$\frac{6}{24}$
BY	$\frac{3}{24}$

Waxaan sidoo kale ka heli karnaa
itimaalada (probabilities) meesha saami
(sample space) ah.

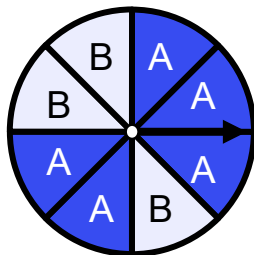
$$P(X \text{ iyo } A) = \frac{10}{24}$$

Muujiinta tijaabooyin laba-wareeg ah oo ku kala duwan jaantusyo (diagrams)

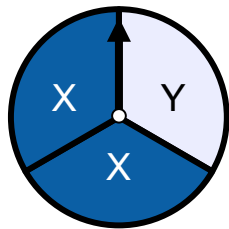


Sharaxaad

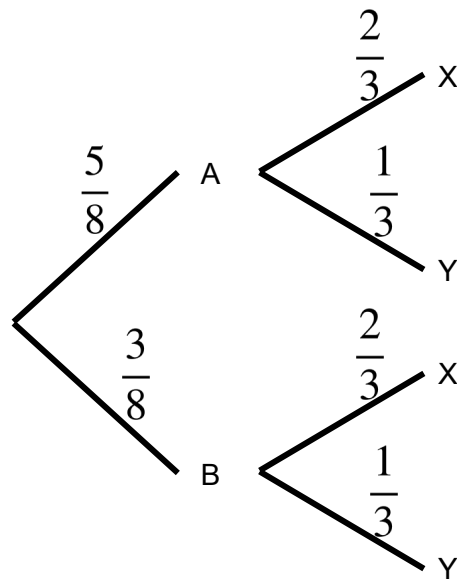
Tijaabo: wareejinta 1 iyo
wareejinta 2 ayaa midba
midka kale la wareejin
doonaa hal mar.



wareejinta 1



wareejinta 2



meesha muunadda
(sample space)

AX	$\frac{10}{24}$
AY	$\frac{5}{24}$
BX	$\frac{6}{24}$
BY	$\frac{3}{24}$

Waxaan sidoo kale ka heli karnaa
itimaalka (probabilities) meeshan
muunadda (sample space).

$P(X \text{ ama } A) =$

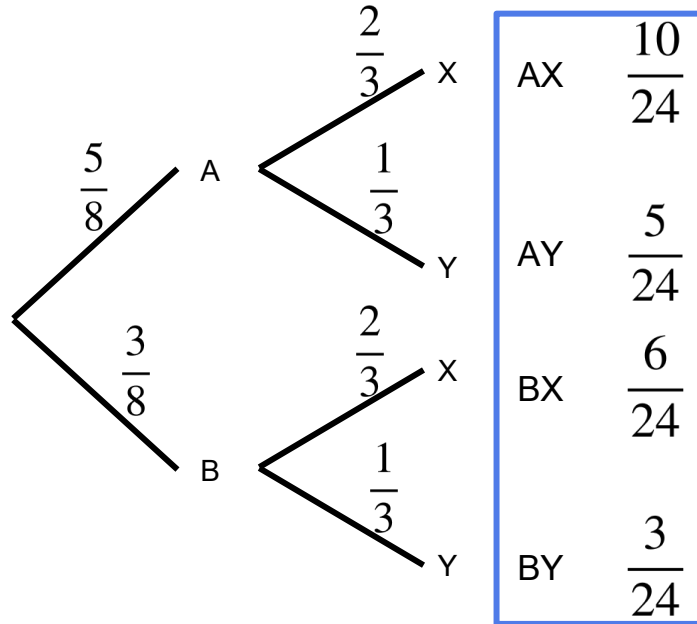
$$\frac{10}{24} + \frac{5}{24} + \frac{6}{24} = \frac{21}{24}$$



Laakiin shaxda natiijada (outcome table) ayaa sidoo kale aad ugu fiican inay muujiso halka itimaalka (probability) kasta uu ka yimid.

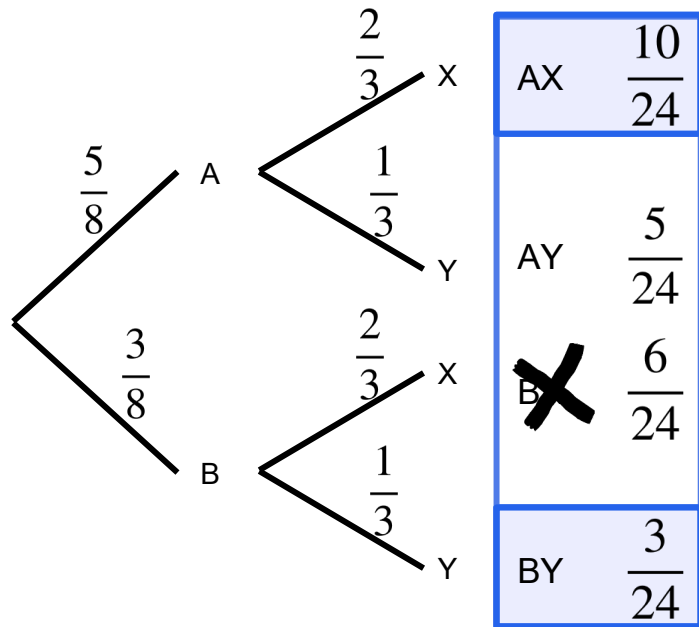


Nuur



	A	A	A	A	A	B	B	B
X	XA	XA	XA	XA	XA	XB	XB	XB
X	XA	XA	XA	XA	XA	XB	XB	XB
Y	YA	YA	YA	YA	YA	YB	YB	YB

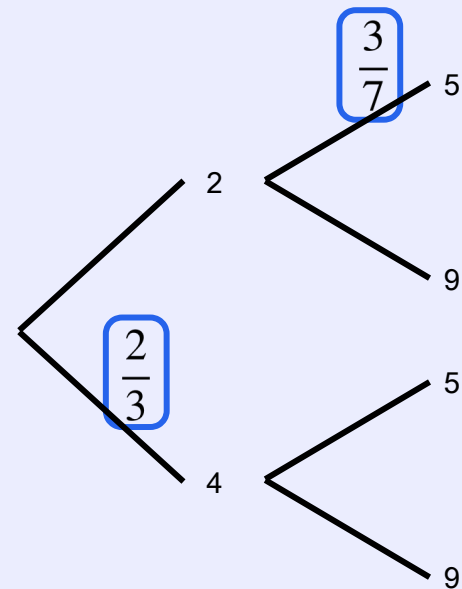
Xaggee baa bannaanka shayga (sample space) lagu muujiyey dhacdada “ama X ama B, laakiin labadaba maya”?
Waa maxay itimaalka (probability) dhacdadan?



$$\frac{10}{24} + \frac{3}{24} = \frac{13}{24}$$

	A	A	A	A	A	B	B	B
X	XA	XA	XA	XA	XA	XB	XB	XB
X	XA	XA	XA	XA	XA	XB	XB	XB
Y	YA	YA	YA	YA	YA	YB	YB	YB

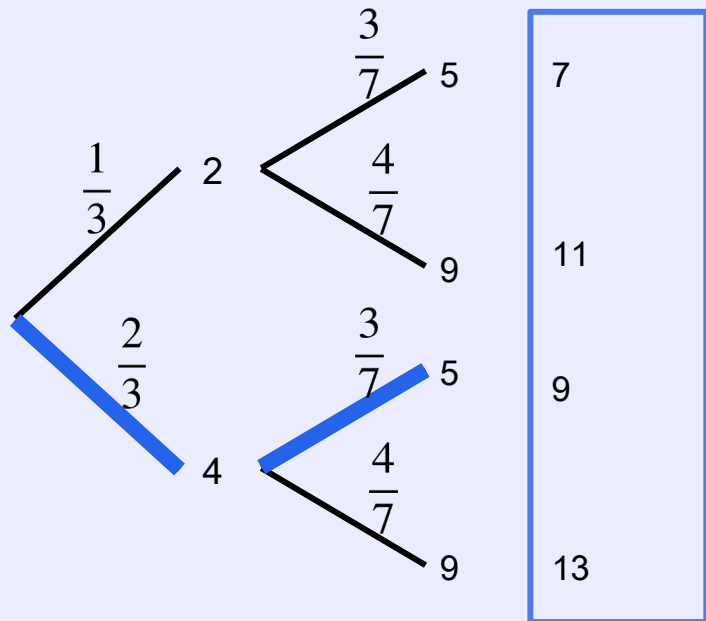
Labadan jaantus waxay muujinayaan isku tijaabo: wareejinta laba wareejiye (spinner) hal mar midkiiba. Natiijooyinka wareejin kasta waa la isku geeyaa (added together).



Adigoo isticmaalaya shaxda natiijooyinka (outcome table), waa maxay labada itimaal (probability) ee la geliyo labada laamood (branches)?

	5	5	5	9	9	9	9
2	7	7	7	11	11	11	11
4	9	9	9	13	13	13	13
4	9	9	9	13	13	13	13

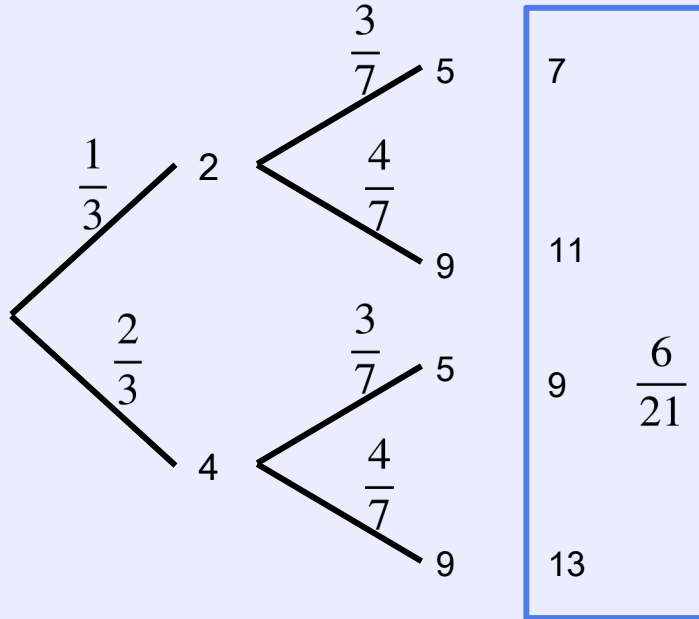
Waa maxay labada jajab (fractions) ee ay tahay in la isku dhufo (multiplied) si loo helo itimaalka (probability) helista 9?



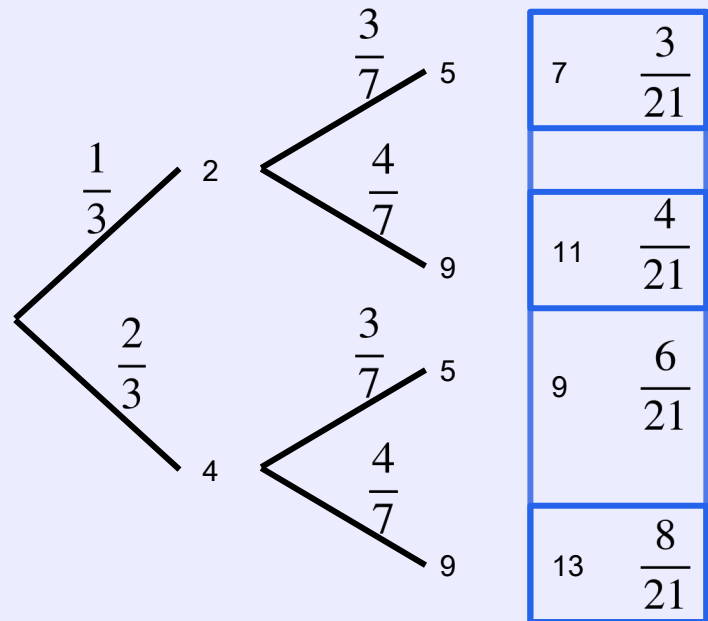
$$\frac{2}{3} \times \frac{3}{7} = \frac{6}{21}$$

	5	5	5	9	9	9	9
2	7	7	7	11	11	11	11
4	9	9	9	13	13	13	13
4	9	9	9	13	13	13	13

Imisa natiiyo (outcomes) ayaa shaxda ku jira oo ah 9?



	5	5	5	9	9	9	9
2	7	7	7	11	11	11	11
4	9	9	9	13	13	13	13
4	9	9	9	13	13	13	13



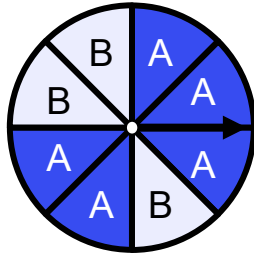
a Imisa natiijo (outcomes) ayaa ah tiro koowaad (prime)?

Dhammaan toddobada (sevens), kow iyo tobanka (elevens), iyo saddex iyo tobanka (thirteens) waa tiro koowaad (prime). Waxaa jira 15 natiijo oo tiro koowaad ah.

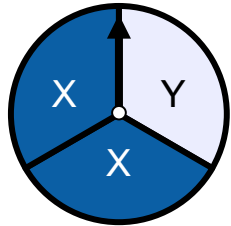


b Waa maxay itimaalka (probability) natiijadu tahay tiro koowaad (prime number)?

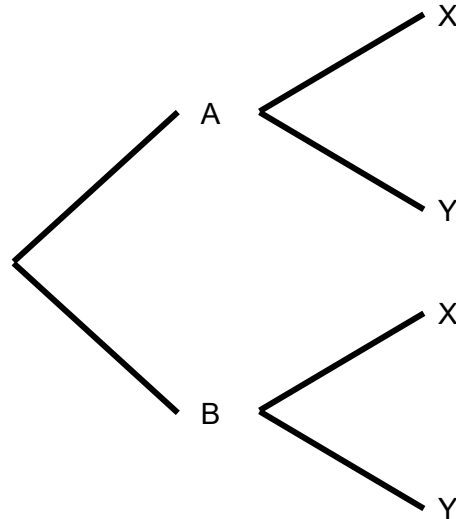
			$\frac{3}{21}$	$\frac{4}{21}$	$\frac{8}{21}$	$\frac{15}{21}$	
	5	5	5	9	9	9	9
2	7	7	7	11	11	11	11
4	9	9	9	13	13	13	13
4	9	9	9	13	13	13	13



wareejiyaha 1aad
(spinner 1)



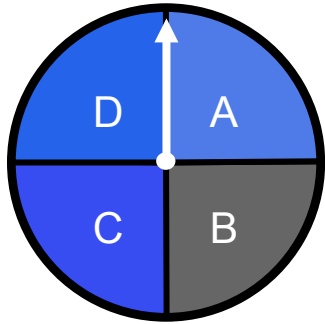
wareejiyaha 2aad
(spinner 2)



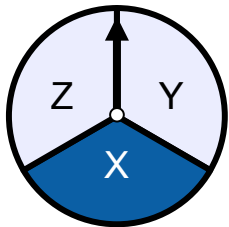
Inkastoo aan doorbido geedaha itimaalka (probability trees) haddii ay jiraan natiijooyin badan oo soo noqnoqda marxalad tijaabo ah...



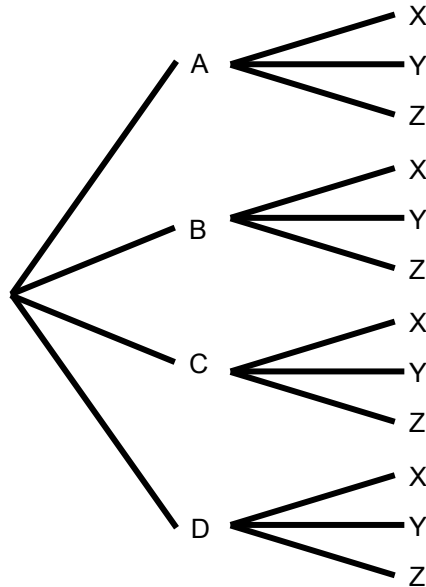
Nuur



wareegiyaha 1
(spinner 1)



wareegiyaha 2
(spinner 2)



Haddii heer kasta uu leeyahay natiijooyin (outcomes) gaar ah, geedku wuu ka adkaan doonaa in la sawiro marka loo eego shaxda natiijooyinka (outcome table)!



Nuur

	X	Y	Z
A	A X	A Y	A Z
B	B X	B Y	B Z
C	C X	C Y	C Z
D	D X	D Y	D Z

Dheeshi (dice) 4-dhinac leh waxay leedahay tirooyin (integers) 1 ilaa 4.

Wareegiyuhu (spinner) wuxuu leeyahay natiijooyin (outcomes): {3, 3, 3, 4, 4}

Tijaabo (Trial): dheesha (dice) waa la rogaa hal mar, wareegiyana (spinner) waa la wareejiyaa hal mar.

Kee ka mid ah bayaanadaan ayaa ah sababo ku habboon oo loogu doorto in tijaabadan lagu muujiyo shaxda natiijooyinka (outcome table) ama geedka itimaalka (probability tree)?

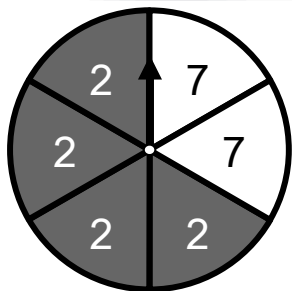


Shaxda natiijooyinka (outcome table), sababtoo ah waxaa jira 4 natiijooyin (outcomes) oo gaar ah dheesha (dice).



Geedka itimaalka (probability tree), sababtoo ah waxaa jira natiijooyin (outcomes) badan oo soo noqnoqda wareegiyaha (spinner).

Labaduba waa sababo macquul ah oo loogu doorto jaantus midka kale.



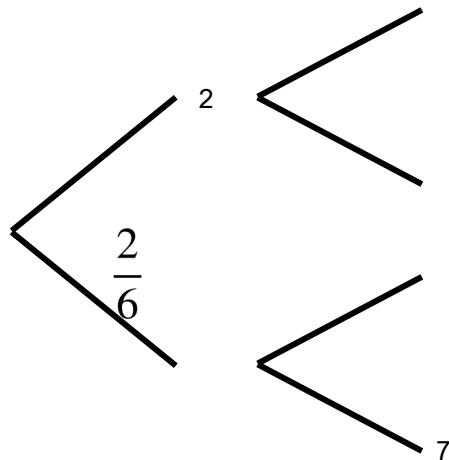
wareegiyaha
(spinner)

1) Tijaabo (Trial): wareegiyahan (spinner) waa la wareejiyaa laba jeer, natiijooyinka (outcomes) kasta waa la isku dhuftey.

a) Buuxi shaxda natiijooyinka (outcome table) iyo geedka itimaalka (probability tree) ee tijaabadan.

b) Ku wareeji itimaalka (probabilities) iyo natiijooyinka (outcomes) ee dhacdada "tiro siman (even number)".

c) Raadi
 $P(\text{multiple of } 7)$



	2	2	2	2	7	7
2						
2						
2						
2						
7						
7						

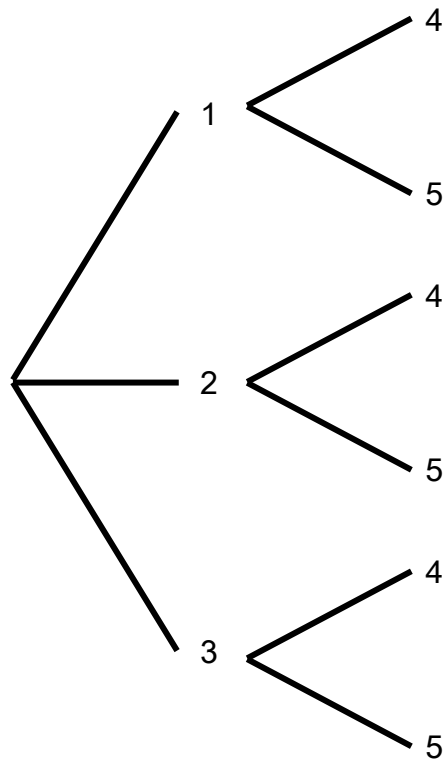
2) Tijaabo (Trial): wareegiyaha A iyo B waa la wareejiyaa hal mar mid kasta. Natiijooyinka (outcomes) waa la isku geeyaa.

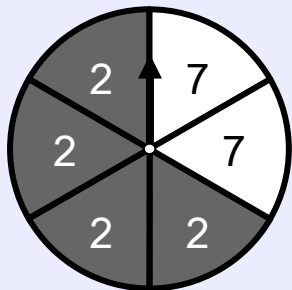
		wareegiyaha A (spinner A)								
		1	1	1	2	2	3	3	3	
wareegga B (spinner B)	4	5	5	5	6	6	7	7	7	
	5	6	6	6	7	7	8	8	8	
	5	6	6	6	7	7	8	8	8	

a) Isticmaal shaxda natiijada (outcome table) si aad u dhamaystirto geedka itimaalka (probability tree).

b) Immisa natiijooyin tiro-mutuxan (prime) ayaa jira?

c) Raadi $P(6 \text{ ama } 8)$ adigoo isticmaalaya geedka itimaalka (probability tree).





wareegga (spinner)

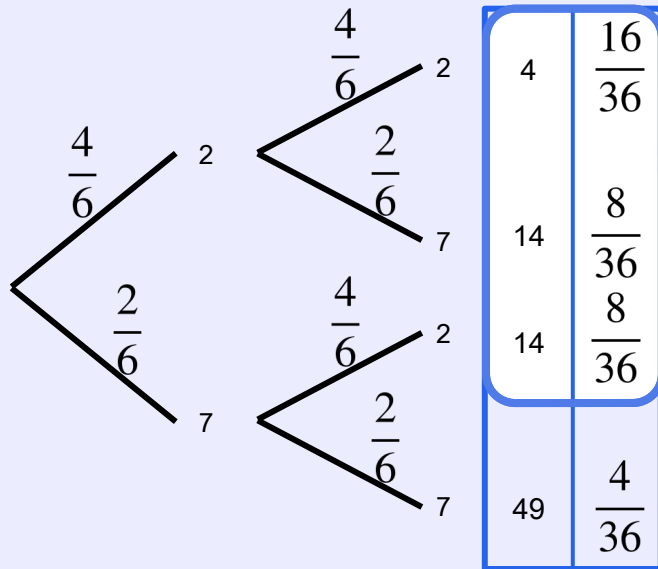
1) Tijaabo: wareeggan (spinner) waa la wareejiyaa laba jeer, natiijooyinka kasta waa la isku dhufanayaa.

a) Dhamaystir shaxda natiijada (outcome table) iyo geedka itimaalka (probability tree) tijaabadan.

b) Ku wareeji (circle) itimaallada (probabilities) iyo natiijooyinka dhacdada "tiro siman (even number)".

c) Raadi
P(tiro-islaboodhka 7) (multiple of 7)

$$\frac{20}{36}$$



	2	2	2	2	7	7
2	4	4	4	4	14	14
2	4	4	4	4	14	14
2	4	4	4	4	14	14
2	4	4	4	4	14	14
7	14	14	14	14	49	49
7	14	14	14	14	49	49

2) Tijaabo: wareegga A iyo B ayaa la wareejiyay hal mar midkiiba. Natiijooyinka waa la isku darayaa.

		wareegga A (spinner A)								
		1	1	1	2	2	3	3	3	
wareegga B (spinner B)	4	5	5	5	6	6	7	7	7	
	5	6	6	6	7	7	8	8	8	
	5	6	6	6	7	7	8	8	8	

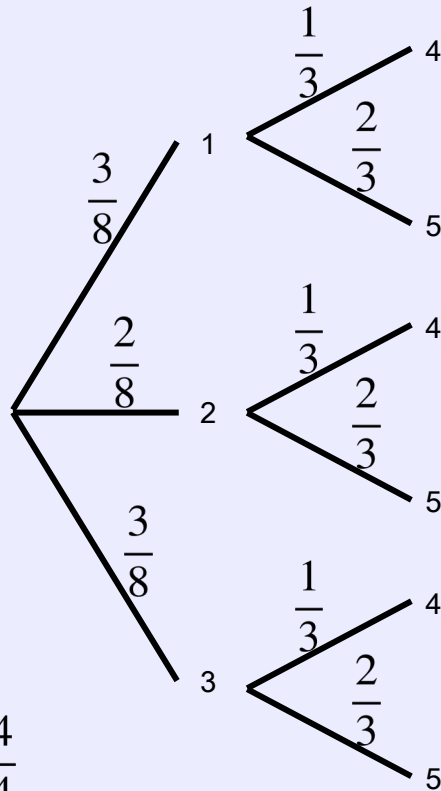
a) Isticmaal shaxda natiijada (outcome table) si aad u dhamaystirto geedka itimaalka (probability tree).

b) Immisa natiijooyin tiro-mutuxan (prime) ayaa jira?

10 natiijooyin tiro-mutuxan (prime)

c) Raadi $P(6 \text{ ama } 8)$ adigoo isticmaalaya geedka itimaalka (probability tree).

$$\frac{6}{24} + \frac{2}{24} + \frac{6}{24} = \frac{14}{24}$$



5	$\frac{3}{24}$
6	$\frac{6}{24}$
6	$\frac{2}{24}$
7	$\frac{4}{24}$
7	$\frac{3}{24}$
8	$\frac{6}{24}$

Qaabka casharka

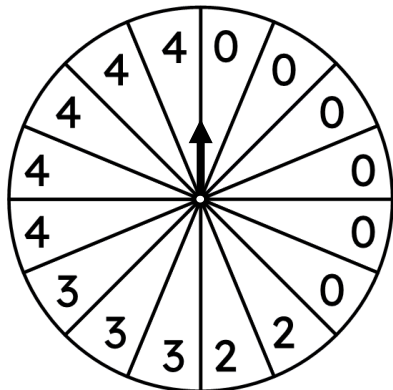
Isbarbardhigga matalaadyo badan si loo xisaabiyo itimaallada (probabilities) aragtida (theoretical) ee dhacdooyinka isku-dhafaan (combined events)



Muujinta tijaabooyin laba-wareeg ah oo ku kala duwan jaantusyo



Bayaanno (Statements) ee dhacdooyinka (events) ee jaantusyo kala duwan



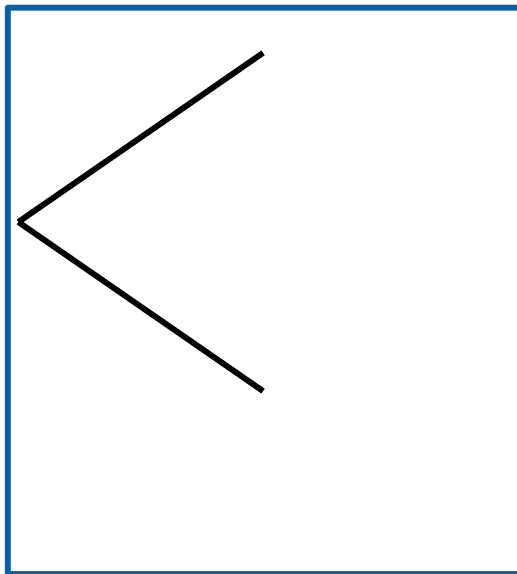
Wareeggan (spinner) ayaa hal mar la wareejiyay.

Haddii ay ku soo degto:

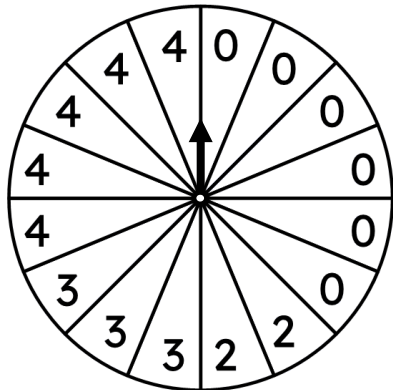
- 2 ama 4 - Saciid waa guuleystay
- 3 ama 4 - Axmed waa guuleystay
- 0 - guul ma jirto

Dhacdooyinka (Events): Saciid waa guuleystay, Axmed waa guuleystay

Si loo muujiyo dhacdooyinkan geedka itimaalka (probability tree), waa inaan marka hore u kala saarno natiijooyinka dhacdo kasta laba kooxood (sida geedka natiijada (outcome tree)):



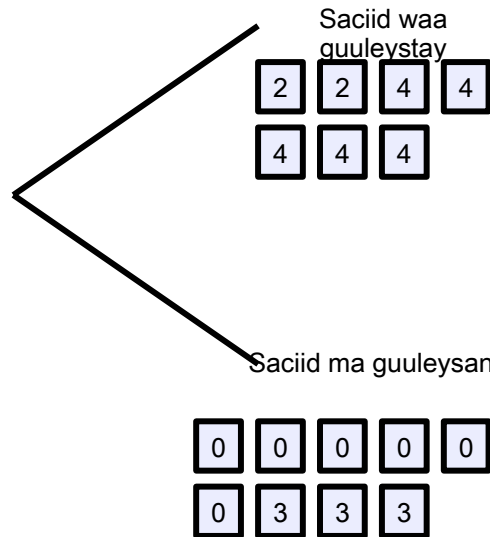
dhacdo 1 (Saciid waa guuleystay)



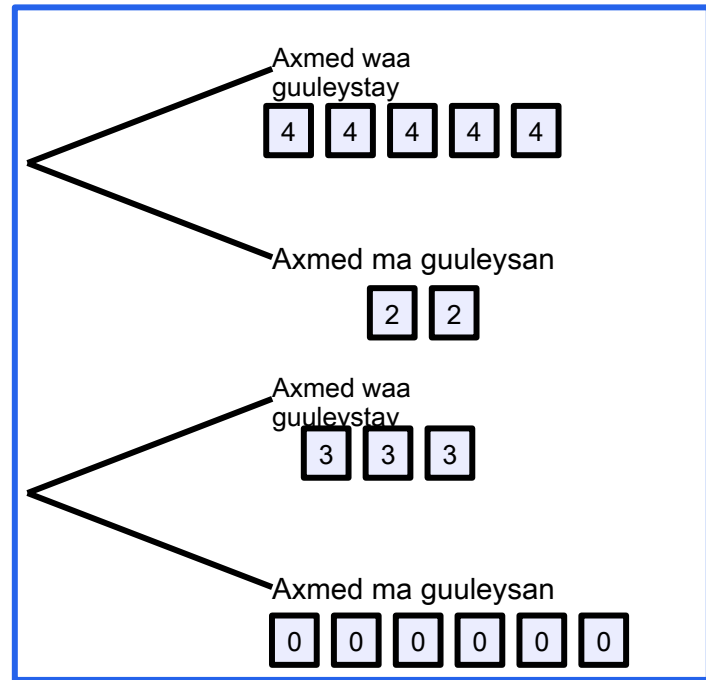
Wareeggan (spinner) ayaa hal mar la wareejiyay.

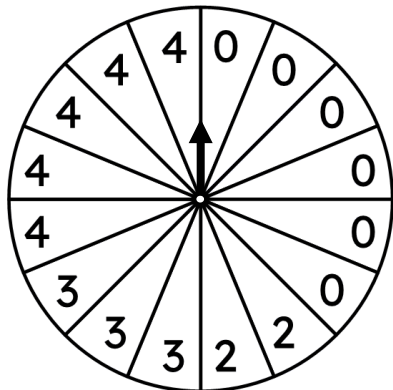
Haddii ay ku soo degto:

2 ama 4 - Saciid waa guuleystay
 3 ama 4 - Axmed waa guuleystay
 0 - guul ma jirto



dhacdo 2 (Axmed waa guuleystay)





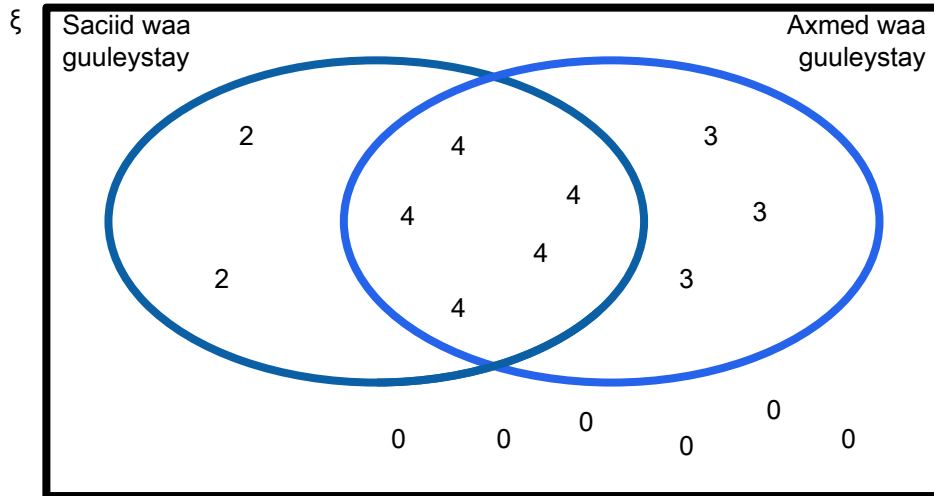
Wareejiyahan (spinner) hal mar ayaa la wareejin doonaa.

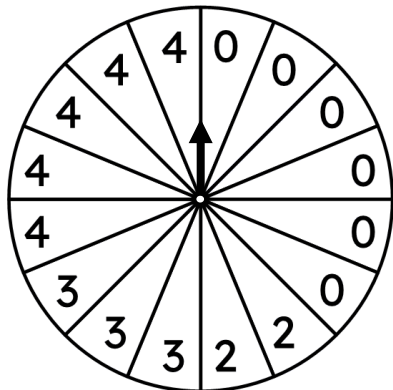
Haddii uu ku soo degto:

- 2 ama 4 - Saciid waa guuleystay
- 3 ama 4 - Axmed waa guuleystay
- 0 - guul ma jirto

Dhacdooyinkan isku mid ah waxaa lagu muujin karaa jaantuska Venn (Venn diagram).

Waxaan muujin karnaa natiijo kasta oo gaar ah oo ka timid wareejiyaha (spinner) oo loo kala saaray dhacdooyin kala duwan...





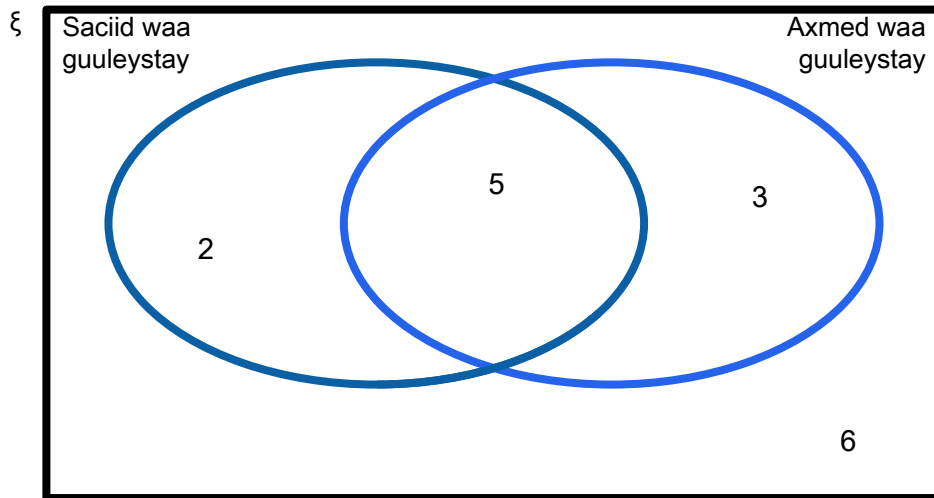
Wareejiyahan (spinner) hal mar ayaa la wareejin doonaa.

Haddii ay ku soo degto:

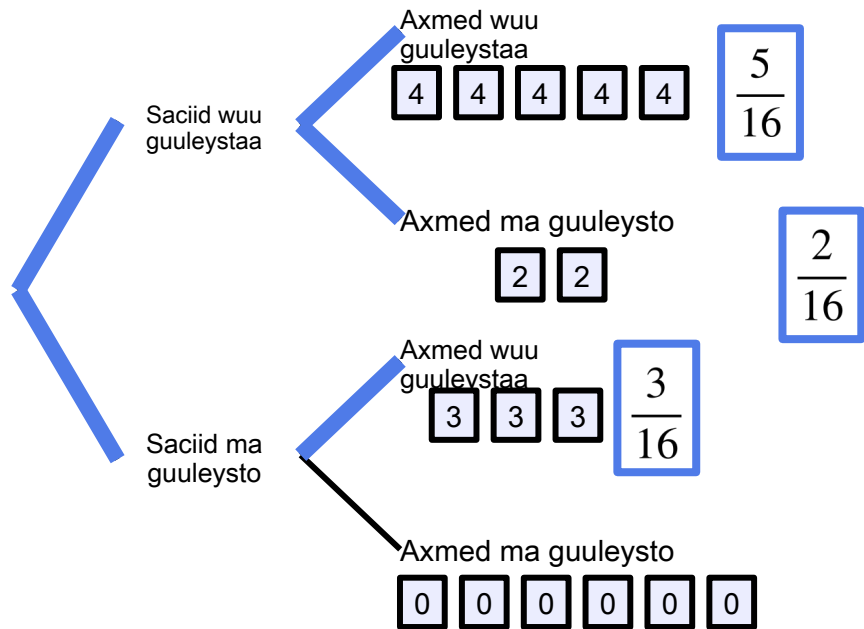
- 2 ama 4 - Saciid waa guuleystay
- 3 ama 4 - Axmed waa guuleystay
- 0 - guul ma jirto

Dhacdooyinkan isku mid ah waxaa lagu muujin karaa nooc kale oo jaantuska Venn (Venn diagram) ah.

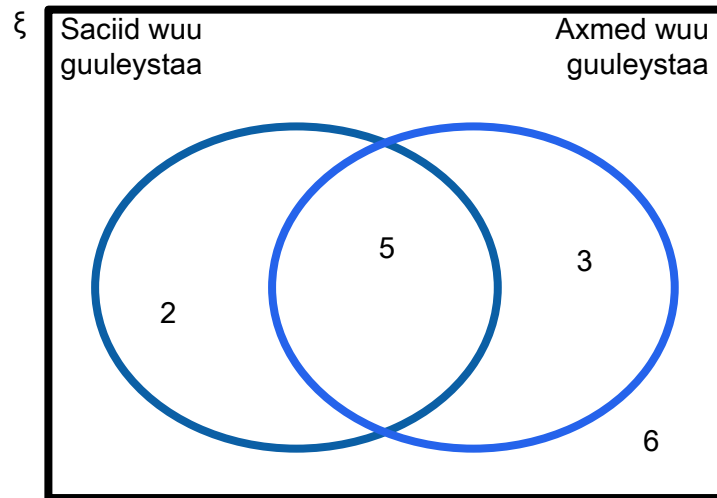
Waxaan muujin karnaa tirada natiijooyinka ee dhacdo kasta.



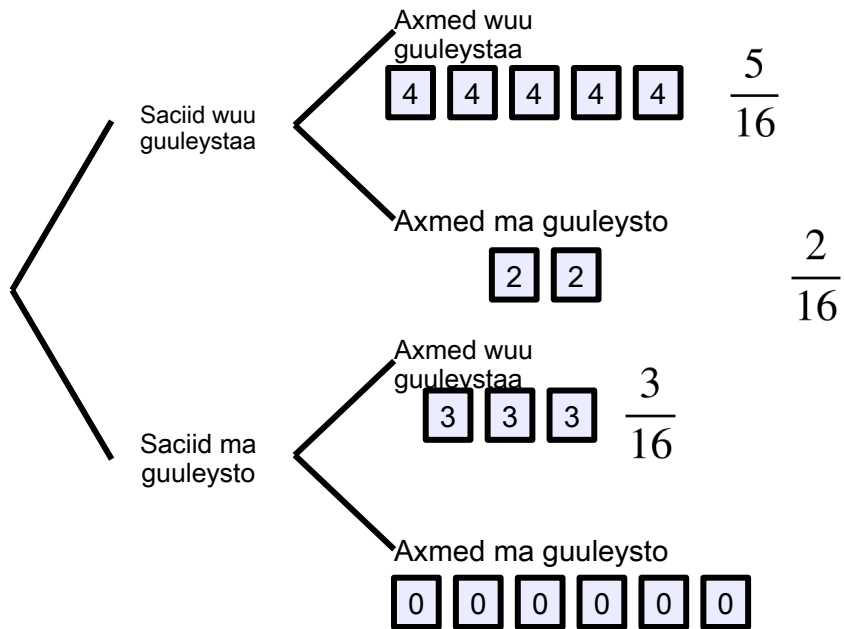
Raadi $P(\text{Saciid ama Axmed wuu guuleystaa})$



$$P(\text{Saciid ama Axmed wuu guuleystaa}) = \frac{5}{16} + \frac{2}{16} + \frac{3}{16} = \frac{10}{16}$$



Raadi P(Saciid ama Axmed wuu guuleystaa)

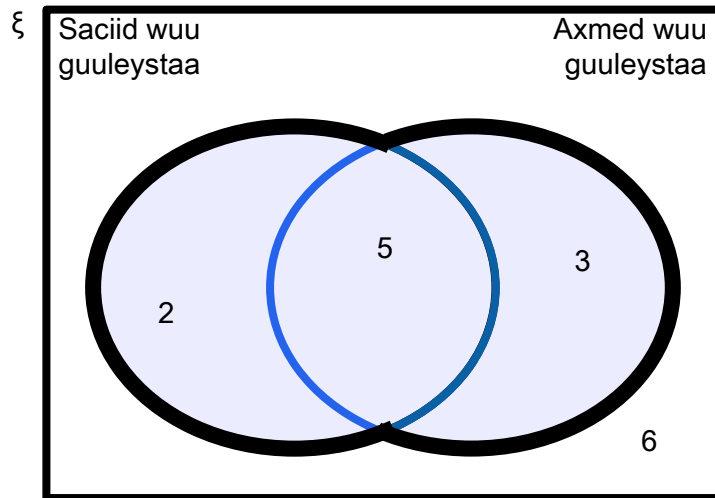


$$P(\text{Saciid ama Axmed waa guuleystaan}) = \frac{5}{16} + \frac{2}{16} + \frac{3}{16} = \frac{10}{16}$$

$$\frac{2 + 3 + 5}{16} = 10$$

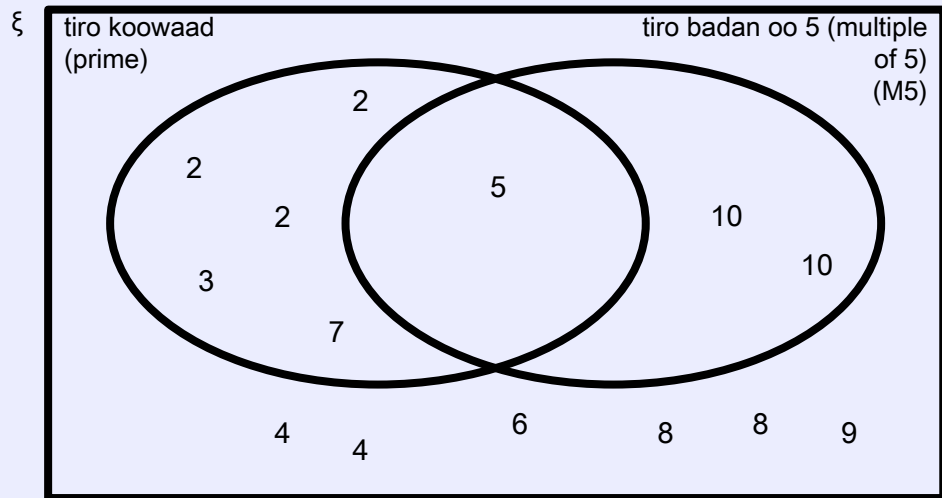
10 natiijo (outcomes) ee labada dhacdo (event) midkood

oo ka mid ah wadarta 16 natiijo (outcomes) ee booska muunadda (sample space)



Jaantuskan Venn wuxuu muujinayaa natiijooyinka shaqsiyeed ee wareejiye (oo leh natiijooyin soo noqnoqday).

Dhacdooyin: tiro koowaad (prime number) iyo tiro badan oo 5 (multiple of 5)

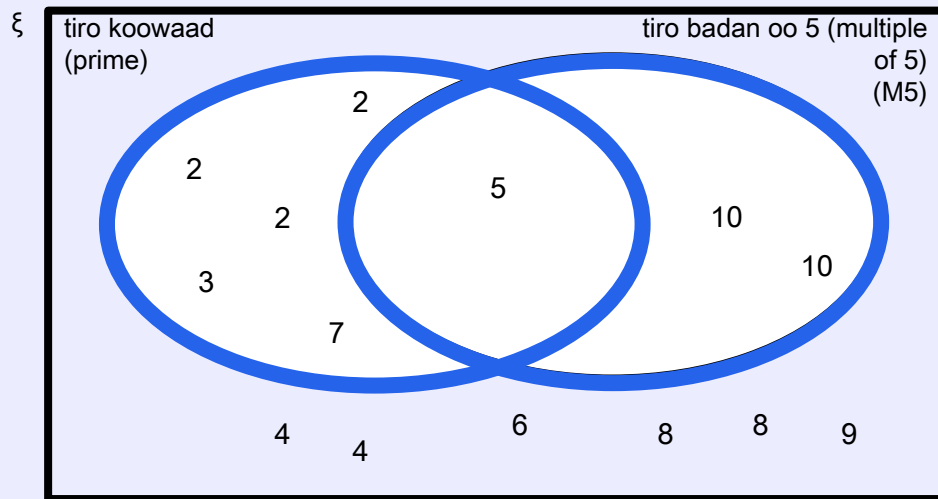


Imisa natiijo oo shaqsiyeed ayaa ku jira jaantuskan Venn?

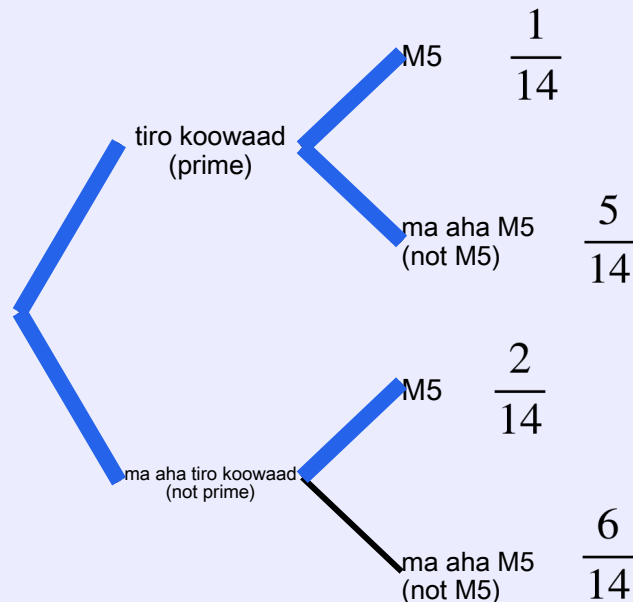
14 natiijo

Jaantuskan Venn wuxuu muujinayaa natijoooyinka shaqsiyeed ee wareejiye (oo leh natijoooyin soo noqnoqday).

Dhacdooyin: tiro koowaad (prime number) iyo tiro badan oo 5 (multiple of 5)



$$\text{Soo hel } P(\text{tiro koowaad (prime) ama M5}) = \frac{8}{14}$$



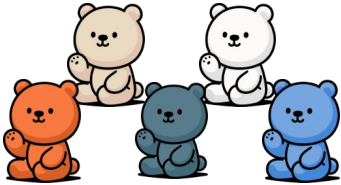
Shaxda natiijada laba-geesoodka ah waxay la wadaagtaa waxyaabo badan oo la mid ah jaantuska Venn.

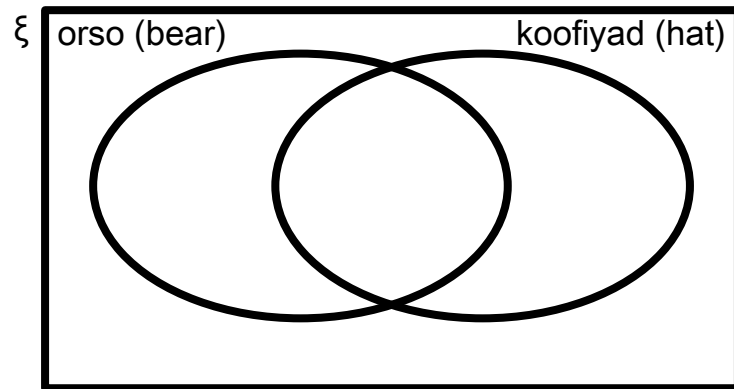
Tijaabo: alaab si random ah ayaa loo doortaa.

Dhacdooyinka: alaabtu waa orso, alaabtu waxay leedahay koofiyad.

Shaxda natiijadu waxay muujinaysaa natiijooyinka shaqsiga ah ee tijaabada.

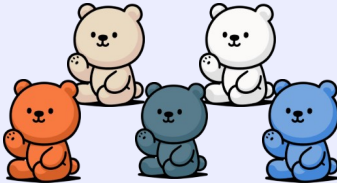
Sidee loo isticmaali karaa shaxda natiijada si loo dhammeeyo jaantuska Venn oo muujinaya tirada natiijooyinka ee dhacdo kasta?

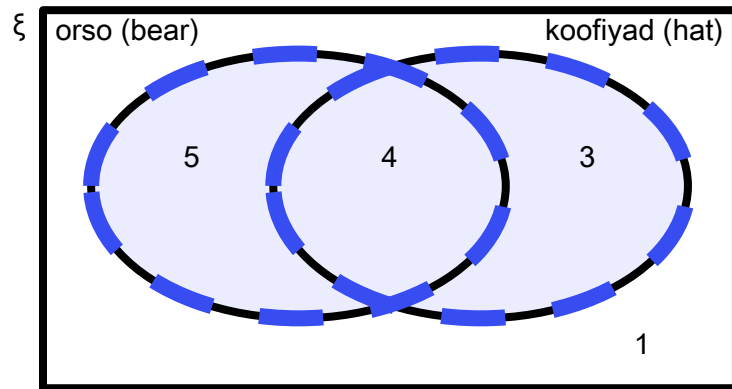
	koofiyad (hat)	koofiyad la'aan (no hat)
orso (bear)		
orso ma aha (not a bear)		



Qaybtee ka mid ah shaxda natiijada iyo jaantuska Venn ayaa muujinaysa dhacdada doorashada alaabta ah orso ama xidhata koofiyad?

$$P(\text{orso ama koofiyad}) = \frac{4}{13} + \frac{5}{13} + \frac{3}{13} = \frac{12}{13}$$

	koofiyad (hat)	koofiyad la'aan (no hat)
orso (bear)		
orso ma aha (not a bear)		



tirada natiijooyinka ee dhacdo kasta

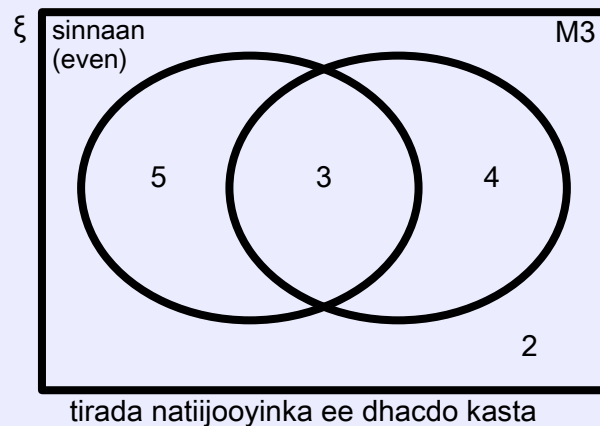
Tijaabo (Trial): si kadis ah uga soo xulo kaar (card) oo lambar ku qoran yahay

Dhacdooyin (Events): kaar (card) wuxuu muujinayaa tiro sinnaan (even number), kaar (card) wuxuu muujinayaa tiro 3-la dhufasho (multiple of 3)

Isticmaal jaantuska Venn (Venn diagram) ee saxda ah si aad u aqoonsato qaybta shaxda natiijada (outcome table) ee kaar (card) ka maqan tahay. Soo jeedi qiime (value) suurtagal ah oo kaar (card)kaas ah.

Kisi dhufasho 3 (Odd multiple of 3). Tusaale: 9, 21, 27, 33, 39, 45, 51, 57, 63, 69, ...

	3-la dhufasho (M3)	ma aha M3 (not M3)
sinnaan (even)	6 18 36	4 16 78 10 22
kisi (odd)	3 15 99	7 19



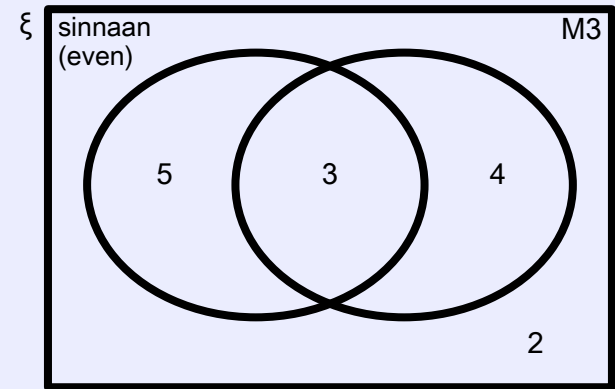
Soo hel suurtagalnimada (probability) ee:

a $P(M3) = \frac{7}{14}$

b $P(M3 \text{ iyo ma aha sinnaan}) = \frac{4}{14}$

c $P(M3 \text{ iyo sinnaan}) = \frac{3}{14}$

	3-la dhufasho (M3)	ma aha M3 (not M3)
sinnaan (even)	6 18 36	4 16 78 10 22
kisi (odd)	3 15 21 99	7 19



tirada natiijooyinka (number of outcomes) dhacdo (event) kasta

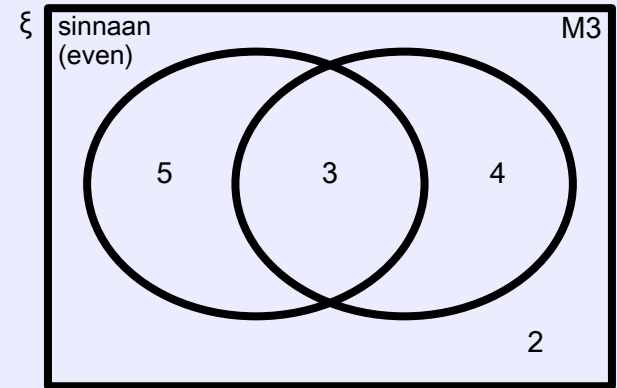
Raadi itimaalka (probability) ee:

d $P(\text{even}) = \frac{8}{14}$

e $P(\text{M3 ama even}) = \frac{12}{14}$

f $P(\text{midna M3 iyo even}) = \frac{2}{14}$

	tiro badan oo 3 (M3)	ma aha M3
xitaa (even)	6 18 36	4 16 78 10 22
khafif (odd)	3 15 21 99	7 19



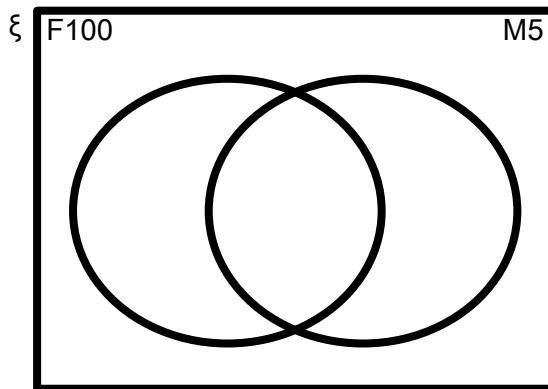
tirada natiijooyinka (number of outcomes) dhacdo (event) kasta

1) Tijaabo (Trial): wareeg (spinner) ayaa la mariyaa hal mar.

Dhacdooyinka (Events): wareeggu wuxuu ku degayaa qayb ka mid ah 100 (F100) ama tiro badan oo 5 (M5).

a) Isticmaal jaantuska natiijooyinka (outcome table) si aad u buuxiso jaantuska Venn (Venn diagram) oo muujinaya tirada natiijooyinka dhacdo kasta.

	(M5)	ma aha M5
F100	5 20 25 10 50	1 2 4
ma aha F100	15 35 75 1005	3 7 11 16 21 33



Raadi itimaalladan (probabilities):

b) $P(M5 \text{ iyo } F100)$

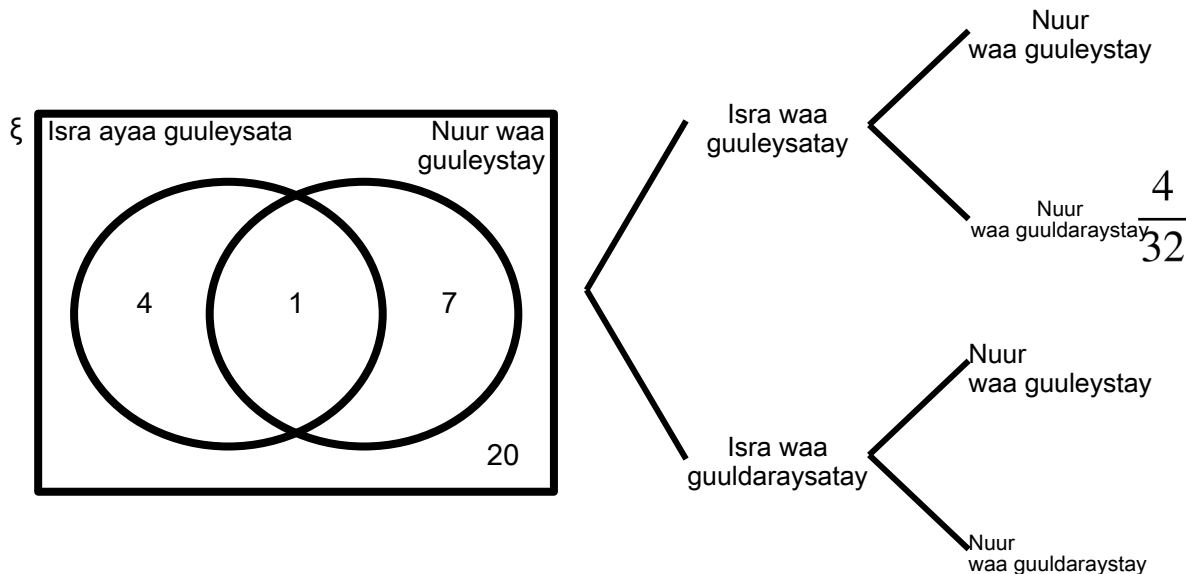
c) $P(M5)$

d) $P(M5 \text{ ama } F100)$

2) Tijaabo (Trial): doorashada nambar random (random number) oo ka mid ah ciyaar ka dhacda suuqa (fair).

Dhacdooyinka (Events): Isra ayaa guuleysata, Nuur ayaa guuleysta

a) Isticmaal jaantuska Venn (Venn diagram) oo muujinaya tirada natiijooyinka ee Isra ama Nuur guuleystaan si aad u buuxiso geedka itimaalka (probability tree).



Soo hel itimaalkaan (probabilities):

b) $P(\text{Isra waa guuleysatay})$

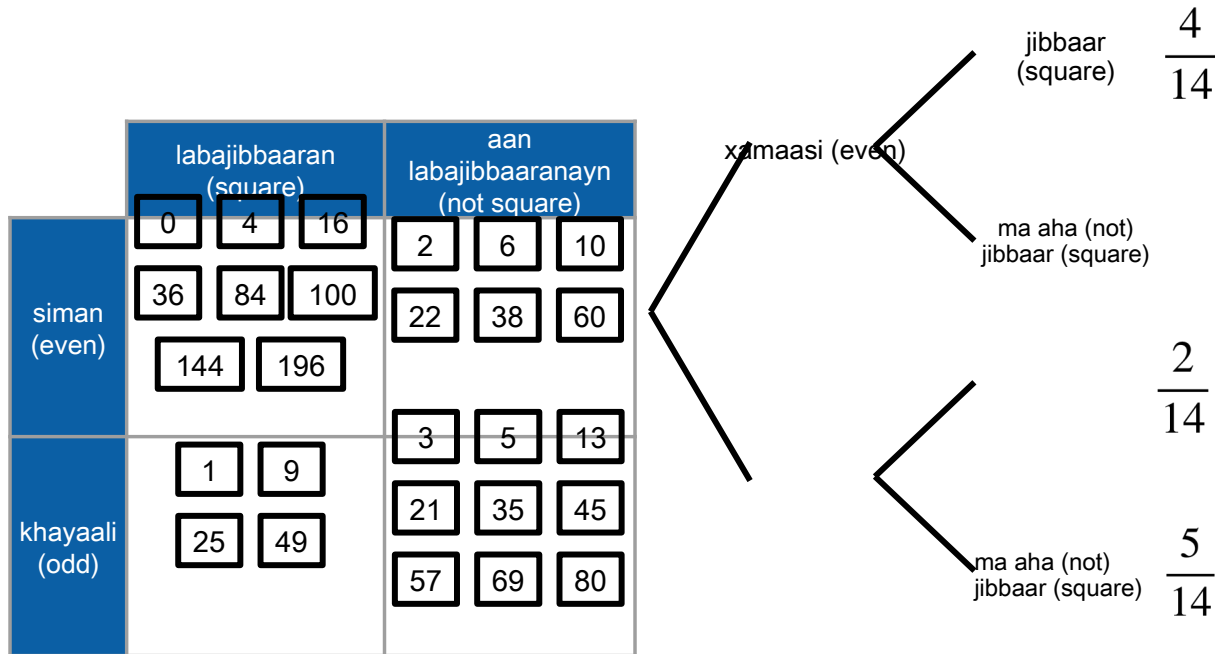
c) $P(\text{kaliya Nuur waa guuleystay})$

d) $P(\text{mid kasta oo guuleysta})$

3) Tijaabo (Trial): wareeg (spinner) ayaa la mariyaa hal mar.

Dhacdooyinka (Events): wareeggu wuxuu ku dhacaa tiro labajibbaaran (square number) ama tiro siman (even number).

a) Dhammeey geedka itimaalka (probability tree) oo leh itimaallo iyo dhacdooyin, iyo sidoo kale dhammeey shaxda natiijooyinka (outcome table) oo leh hal natiijo oo maqan.



Raadi:

b) $P(\text{jibbaar})$

c) $P(\text{jibbaar ama xamaasi})$

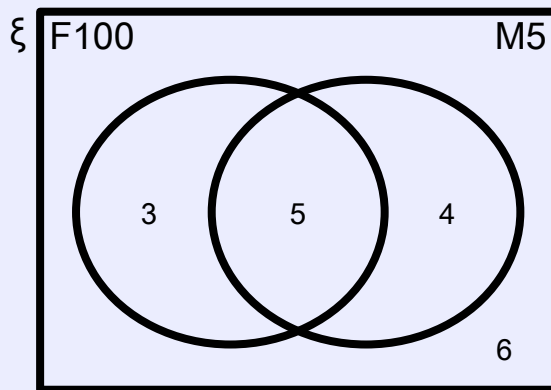
d) $P(\text{jibbaar ama xamaasi, laakiin ma aha labadaba})$

1) Tijaabo: wareeg (spinner) la mariyey hal mar.

Dhacdooyinka: wareeggu wuxuu ku soo degayaa qayb ka mid ah 100 (F100) ama tiro badan oo 5 (M5).

a) Isticmaal shaxda natijada si aad u buuxiso jaantuska Venn oo muujinaya tirada natiijooyinka dhacdo kasta.

	(M5)	ma aha M5
F100	5 20 25 10 50	1 2 4
ma aha F100	15 35 75 1005	3 7 11 16 21 33



Raadi suurto gallada (probabilities) aan:

b) $P(M5 \text{ iyo } F100)$

c) $P(M5) = \frac{5}{18}$

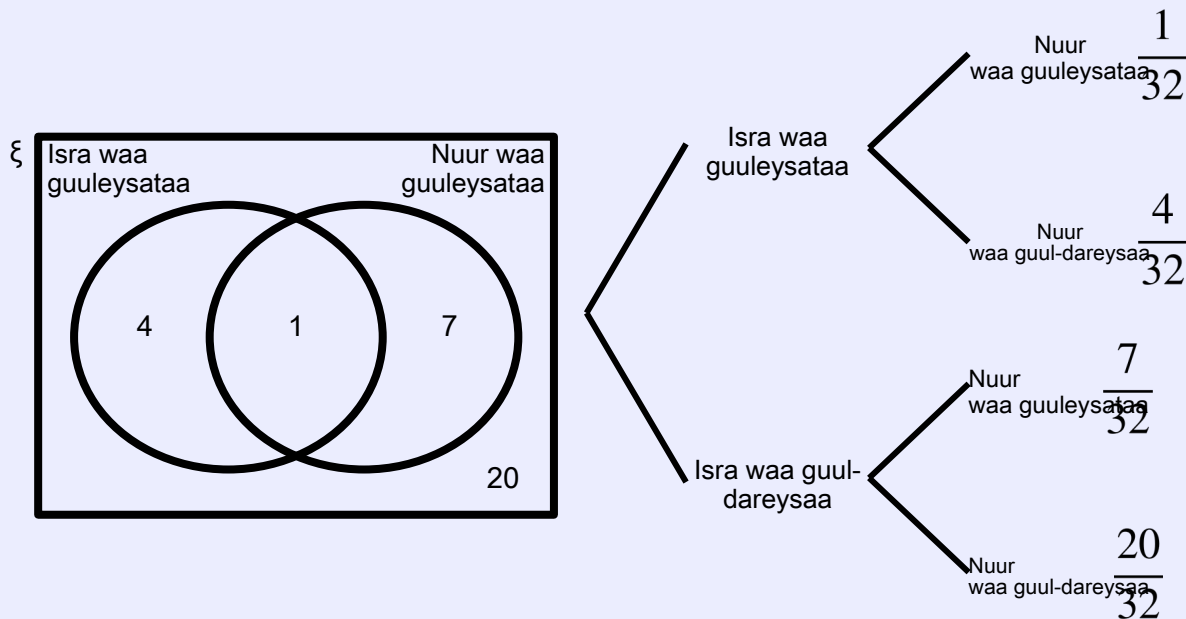
d) $P(M5 \text{ ama } F100) = \frac{9}{18}$

$\frac{12}{18}$

2) Tijaabo: doorasho nambar random ah oo ka mid ah ciyaar ka dhacda suuqa.

Dhacdooyinka: Isra waa guul, Nuur waa guul

a) Isticmaal jaantuska Venn (Venn diagram) oo muujinaya tirada natiijooyinka (outcomes) ee keena in Isra ama Nuur guuleystaan, si aad u dhamaystirto geedka itimaalka (probability tree).



Soo hel itimaalkan (probabilities):

b) $P(\text{Isra waa guuleysataa})$

c) $P(\text{kaliya Nuur waa guuleysataa})$

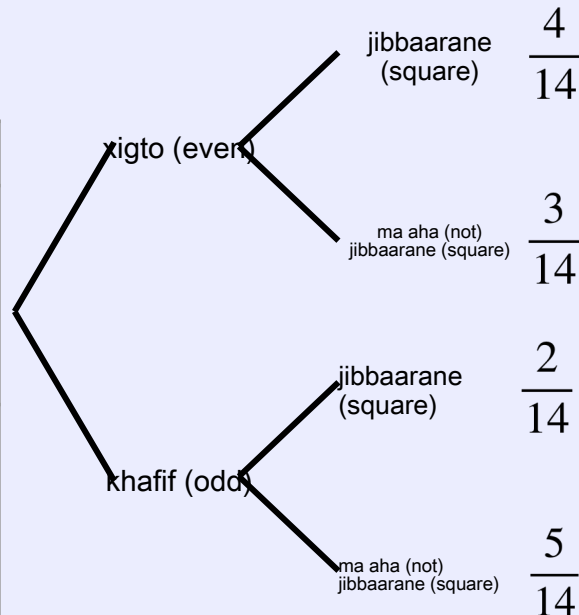
d) $P(\text{mid kasta oo guuleysta})$

3) Tijaabo (Trial): wareejiyaha (spinner) ayaa la wareejiyaa hal mar.

Dhacdooyinka (Events): wareejiyuhu wuxuu ku soo degayaa tiro laba jibaaran (square number) ama tiro siman (even number).

a) Dhamaystir labadaba geedka itimaalka (probability tree) oo leh itimaallo iyo dhacdooyin, iyo dhamaystir shaxda natiijooyinka (outcome table) oo leh hal natiijo oo maqan oo suurtagal ah.

	jibbaarane (square)	aan jibbaarane ahayn (not square)
xigto (even)	0 4 16 36 84 100 144 196	2 6 10 22 38 60
khafif (odd)	1 9 25 49	3 5 13 21 35 45 57 69 80



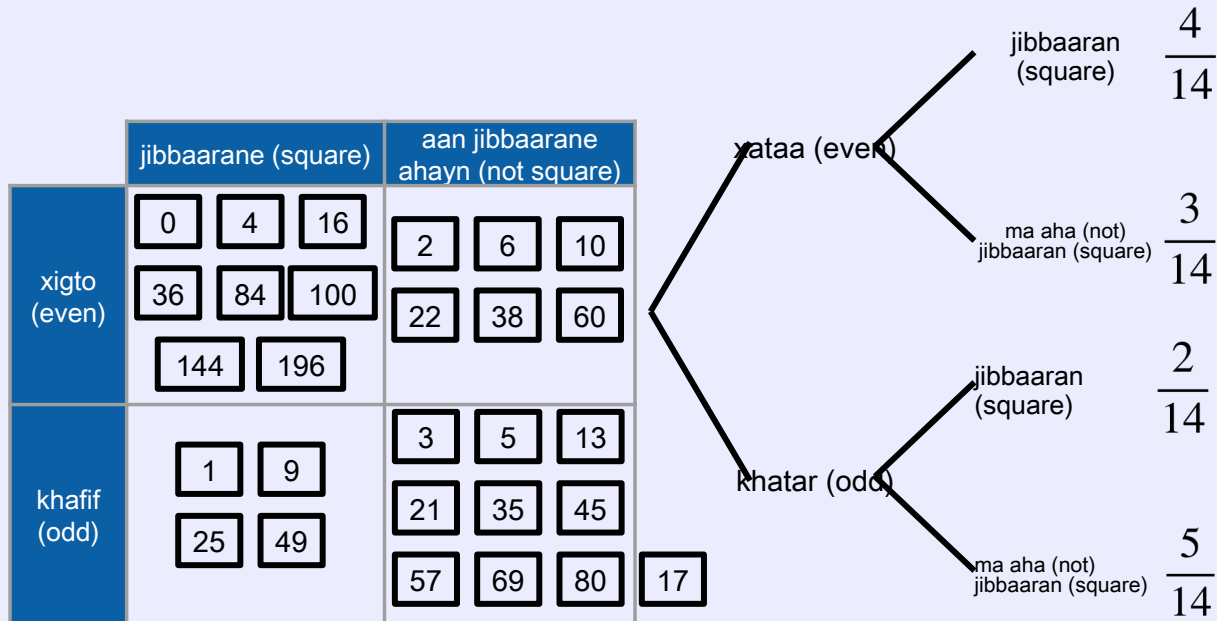
Natiijadii maqan waxay ahayd tiro khafif ah oo aan jibbaarane ahayn.

Tusaale ahaan:
7, 11, 15, 17, 19, 23, ...

3) Tijaabo: wareeg (spinner) hal mar la wareejiyo.

Dhacdooyinka: wareeggu wuxuu ku degayaa tiro jibbaarane (square number) ama tiro xigto (even number).

a) Buuxi labada geedka itimaalka (probability tree) oo leh itimaallo iyo dhacdooyin, iyo buuxi shaxda natiijada oo leh hal natiijo maqan oo suurtoagal ah.



Raadi:

b) $P(\text{jibbaaran}) (P(\text{square})) = \frac{12}{28} = \frac{6}{14}$

c) $P(\text{ama jibbaaran ama xataa}) (P(\text{either square or even}))$

d) $P(\text{ama jibbaaran ama xataa, laakiin labadaba ma aha}) (P(\text{either square or even, but not both}))$

$$\frac{10}{28} = \frac{5}{14}$$

Natiijooyinka tijaabada laba-tallaabo waxaa lagu muujin karaa shaxda natiijada (outcome table), iyadoo ixtimaalka (probabilities) laga xisaabinayo booska muunadda (sample space).

Natiijooyinka iyo ixtimaalka (probabilities) tijaabada laba-tallaabo waxaa lagu muujin karaa geed ixtimaal (probability tree) oo leh laba lakab oo laamo ah.

Natiijooyinka iyo ixtimaalka (probabilities) laba dhacdo (events) (oo ay ku jiraan oraahyada iyo/ama) waxaa lagu muujin karaa shaxda natiijada (outcome table), geed ixtimaal (probability tree), iyo noocyo kala duwan oo jaantus Venn (Venn diagram) ah.