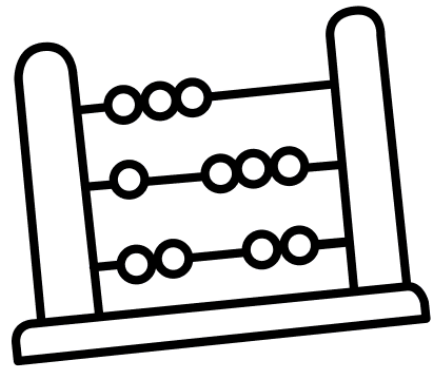


Isticmaalka geedka natiijada si loo muujiyo natiijooyinka laba dhacdo

Maths

Cutub: Itimaalka (Probability): natiijooyinka suurtagalka ah



Natiijo

Waxaan si nidaamsan u heli karaa dhammaan natiijooyinka suurtagalka ah ee laba dhacdo adigoo isticmaalaya jaantuska geedka natiijada.

Erayada muhiimka ah

Jaantusyada geedka (Tree diagrams) waa matalaad loo isticmaalo in lagu qaabeeyo su'aalaha tirakoobka/timaalka. Laamuhu waxay matalaan dhacdooyin ama natijoooyin kala duwan oo suurtagal ah.

Laan kasta oo ka mid ah geedka natiijada waxay muujinaysaa natiijo suurtagal ah oo ka timid dhacdo ama heer tijaabo ah. Geedka natiijada oo dhammaystiran wuxuu muujinayaa dhammaan natiijoyinka suurtagalka ah.

Meel muunad (sample space) waa dhammaan natiijoyinka suurtagalka ah ee tijaabo. Jaantuska meesha muunadku waa hab nidaamsan oo lagu soo saaro meel muunad.

Isticmaalka geedka natijada si loo muujiyo natiiyooyinka
laba dhacdo



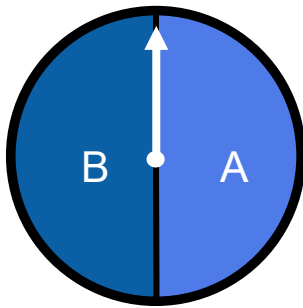
Geedaha natijada ee tijaabooyinka laba heer ah



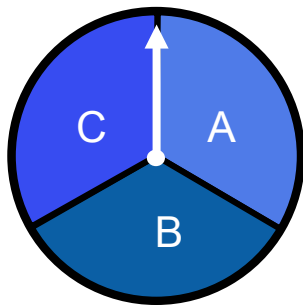
Geedaha natijada ee laba dhacdo

Wareejiyaha 1 iyo 2 labadaba hal mar ayaa la wareejiin doonaa.

Liis dhammaan natiiyooyinka suurtagalka ah.



wareejiyaha 1 (spinner 1)

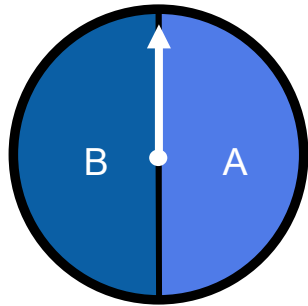


wareejiyaha 2 (spinner 2)

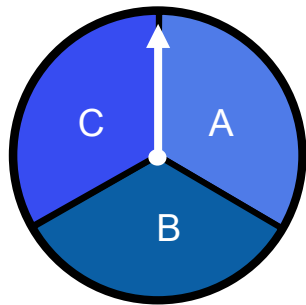
Waxaan jeclaan lahaa in ay jirto hab aan ku hubiyo in aan qoray dhammaan natiiyooyinka tijaabadan.

Waan ogahay inaad isticmaali karto miis laba-geesood ah, laakiin waxaan jeclaan lahaa in ay jirto hab aan ku kala qaybiyo si dheeri ah.



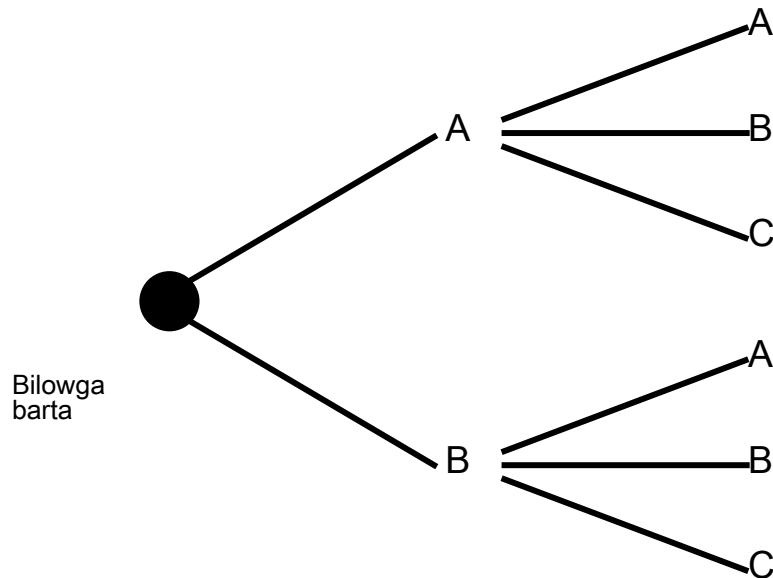


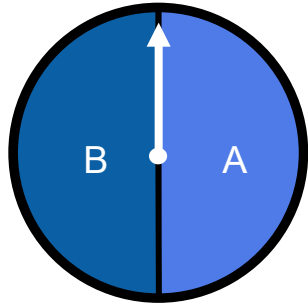
wareejiyaha 1



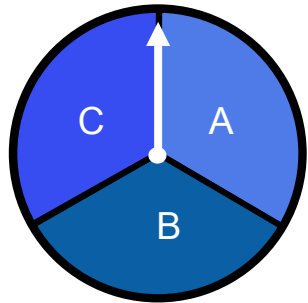
wareejiyaha 2

Geed natijadu wuxuu kaa caawinayaa inuu muujiyo natiijooyinka tijaabada. Waxaan u qaadan karnaa geed natijada sidii wakhti-socod natiijooyinka suurtagalka ah.

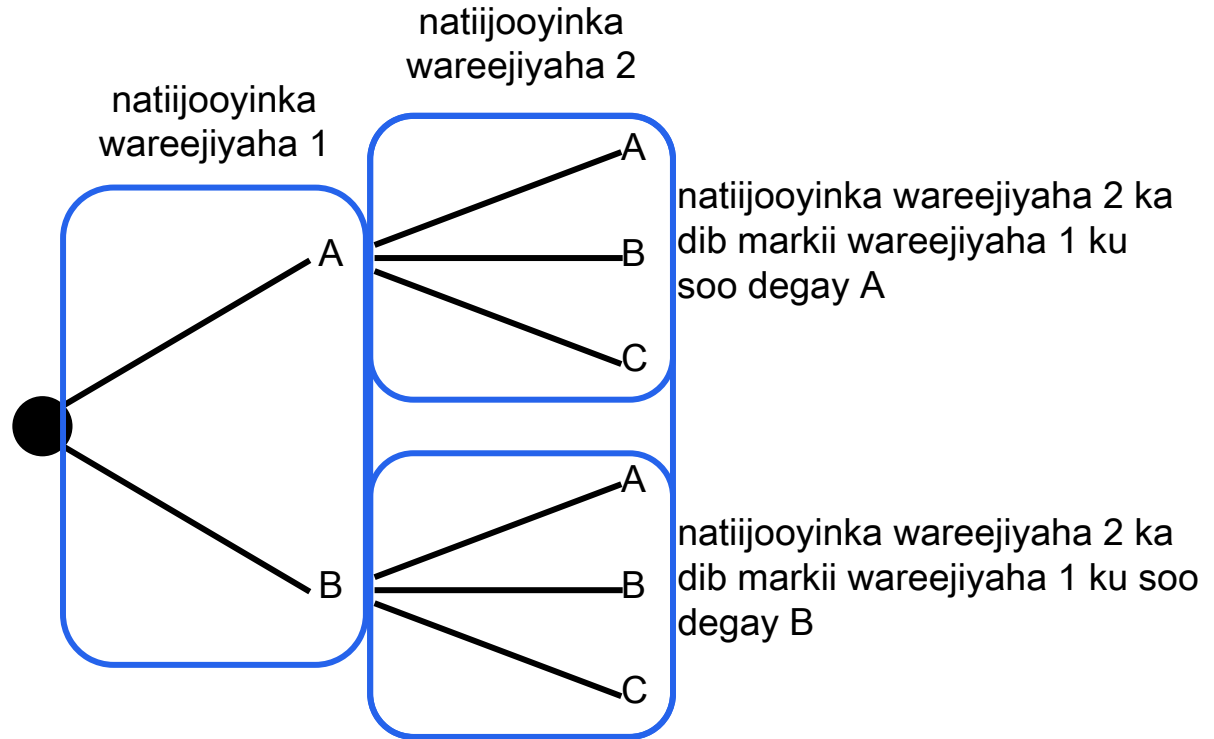


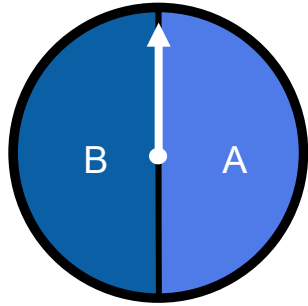


wareejiyaha 1

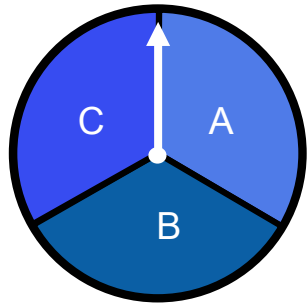


wareejiyaha 2

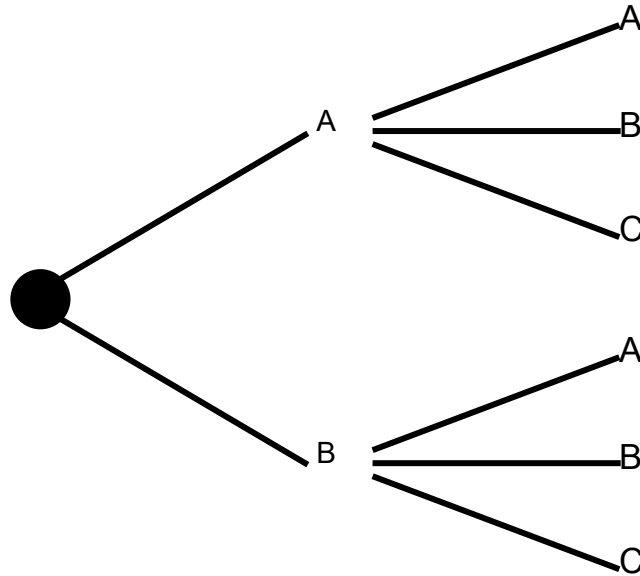




wareejiyaha 1



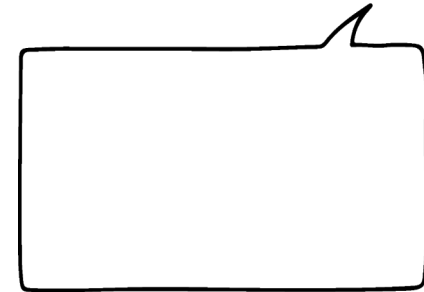
wareejiyaha 2



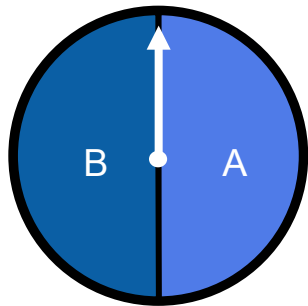
Tani waa qaab dhismeed qurux badan oo muujinaya xaalado kala duwan.



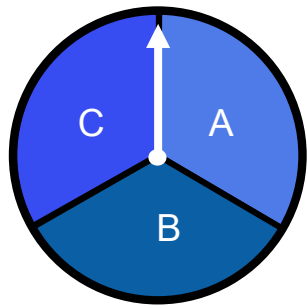
Nuur



Laakiin halka
muuqataa n
tijaabada oo

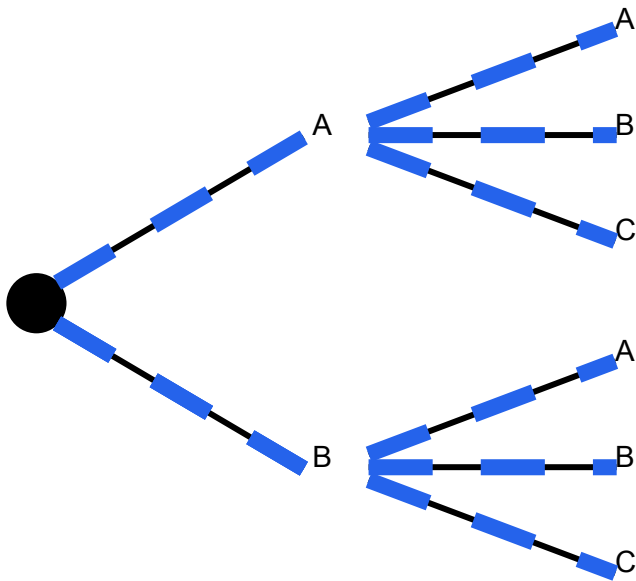


wareejiyaha 1 (spinner 1)



wareejiyaha 2 (spinner 2)

Haddii aan marno waddo kasta oo suurtagal ah, waxaan arki doonnaa dhammaan natijoooyinka suurtagalka ah ee tijaabadan.

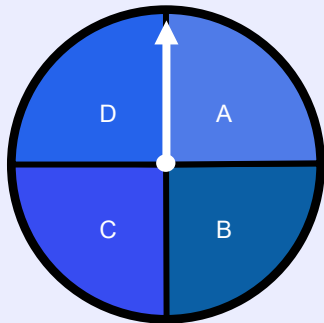


Kani waa meesha muunada (sample space), waxay muujinaysaa dhammaan natijoooyinka suurtagalka ah ee tijaabadan.

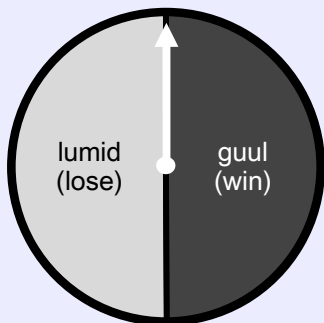
B A

B B

B C

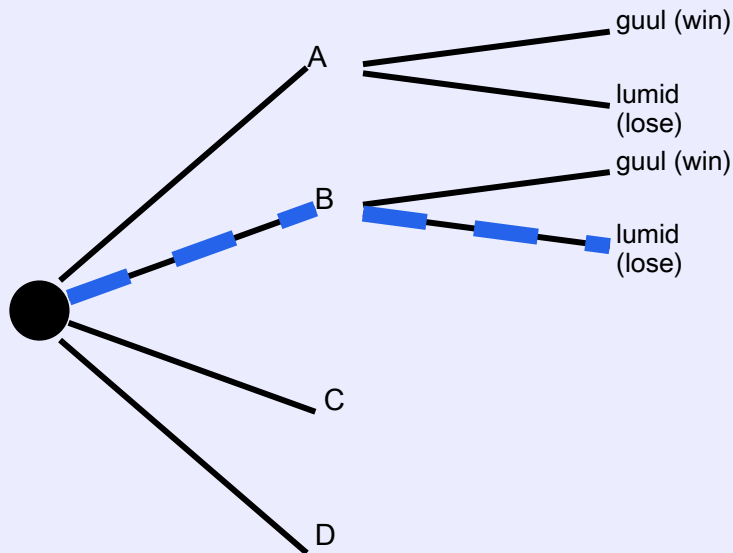


wareejiyaha 1
(spinner 1)



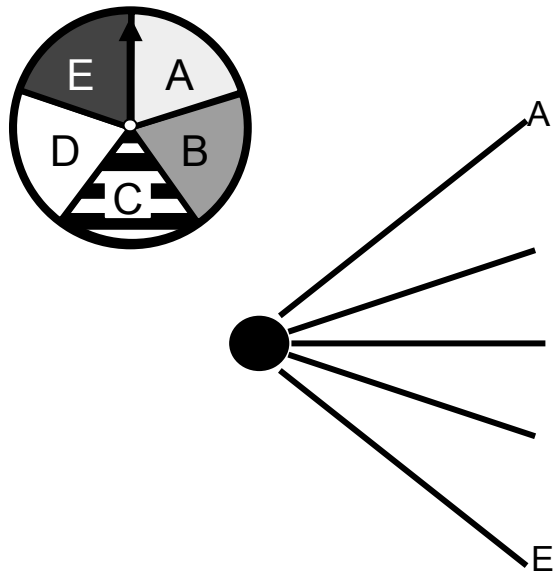
wareejiyaha 2
(spinner 2)

Waa maxay lammaanaha la calaamadeeyay ee laamaha ay ka taagan tahay?

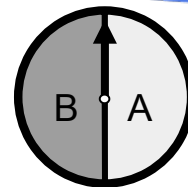
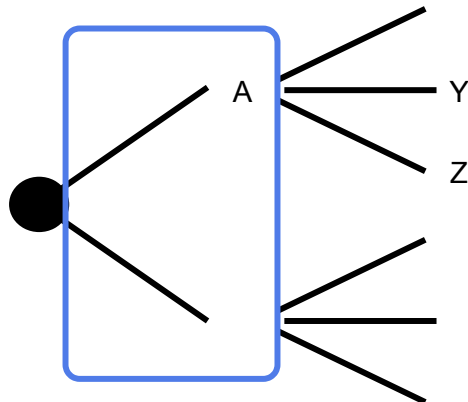


- a** Wareejiyaha B wuu lumiyay
- b** Wareejiyaha 1 wuu lumiyay
- c** Wareegtada 1 waxay ku soo degtay B oo waayay (lose)
- d** Wareejiyaha 1 wuxuu ku degay B, wareejiyaha 2 wuxuu ku degay lumid (lose) ✓
- e** Wareegtada 1 waxay ku soo degtay B sababtoo ah wareegtada 2 waxay ku soo degtay waayay (lose)

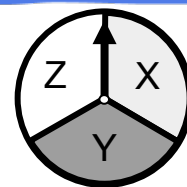
1) Wareegtadan waa la wareejiyay hal mar. Buuxi geedka natiijooyinka (outcome tree) ee tijaabada hal-heerka ah.



2) Wareegtada 1 iyo 2 mid kasta waa la wareejiyay hal mar.



wareegtada 1



wareegtada 2

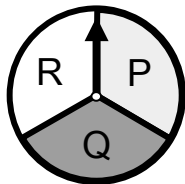
a) Maxay labada laamood ee sanduuqa ku jira u taagan yihiin?

b) Buuxi geedkan natiijooyinka (outcome tree).

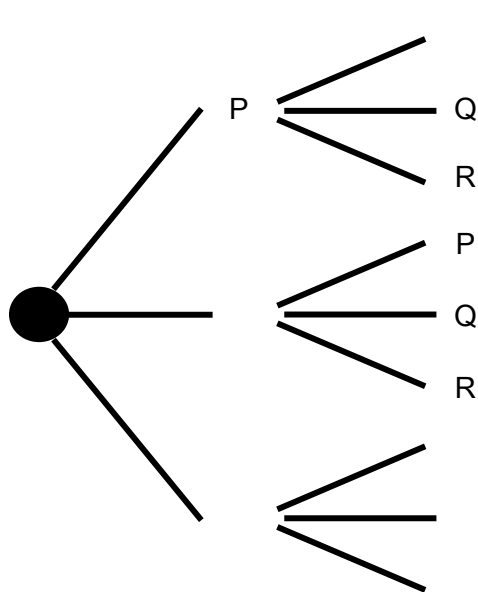
3) Wareegtada 3 waa la wareejiyay laba jeer.

a) Buuxi geedka natiijooyinka (outcome tree).

b) Buuxi booska muunadda (sample space) ee natiijooyinka geedkan natiijooyinka.



wareegga 3



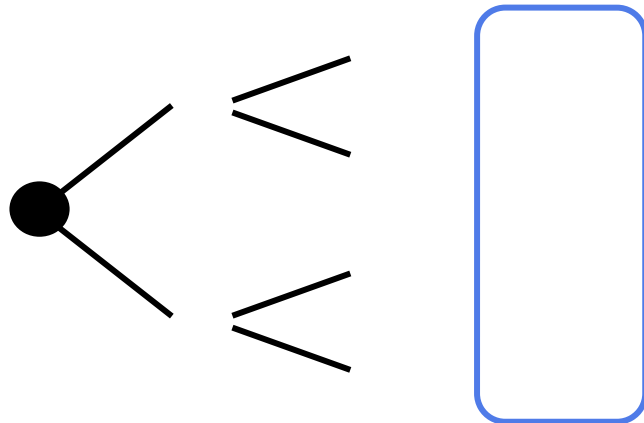
meesha muunada
(sample space)

4) Wareegyada 4 iyo 5 waa la wareejiyay hal mar midkiiba, waxayna leeyihiin natiijooyinkan:

wareegga 4 = {A, B}

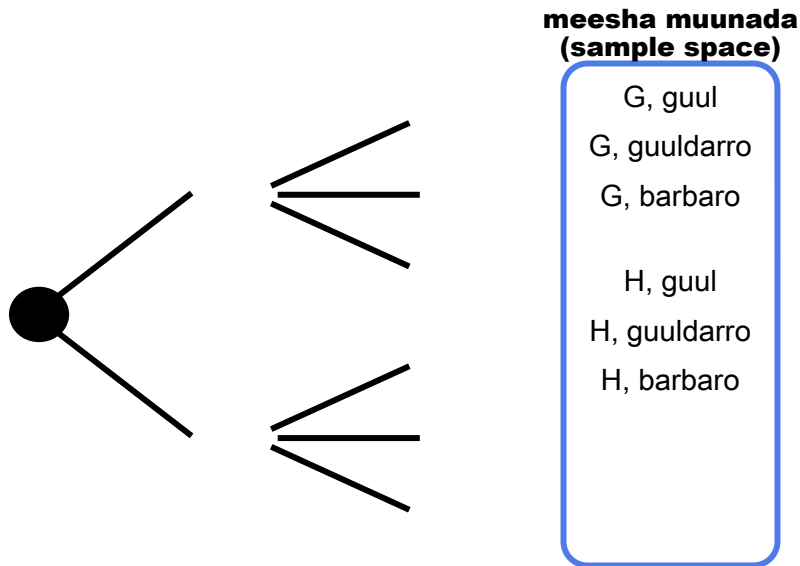
wareegga 5 = {guduud, buluug}

Buuxi geedka natiijada iyo meesha muunada.



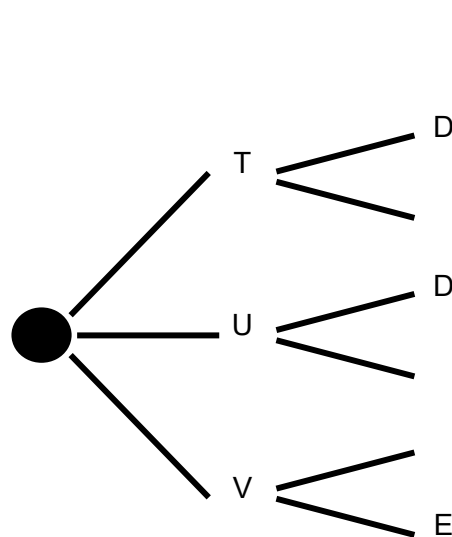
5) Wareegyada 6 iyo 7 waa la wareejiyay hal mar midkiiba.

Buuxi geedka natijada oo ka bilaab meesha muunada.

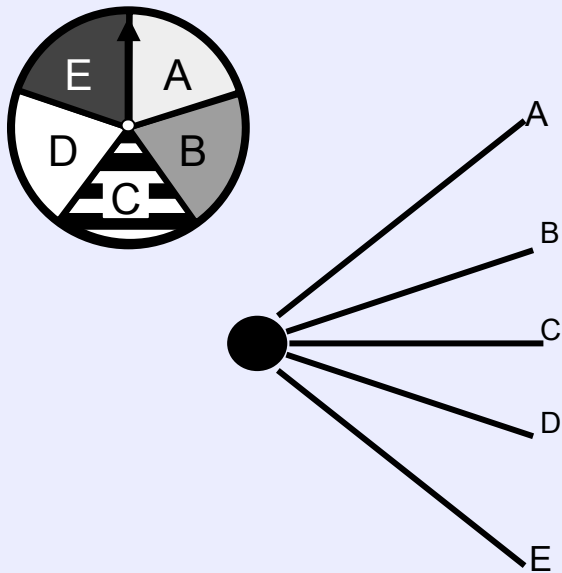


6) Wareegyada 8 iyo 9 waa la wareejiyay hal mar midkiiba.

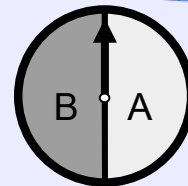
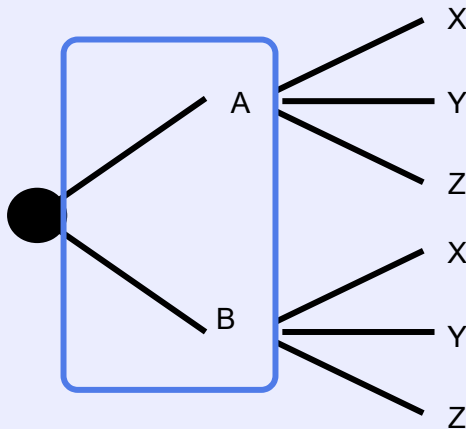
Buuxi natiiyooyinka wareeg kasta oo ka mid ah geedka natijada.



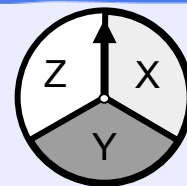
1) Wareejyahan (spinner) kan ayaa hal mar la wareejin doonaa.
Dhamaystir geedka natiijada (outcome tree) ee tijaabada hal-heerka ah.



2) Wareegyada 1 iyo 2 waa la wareejiyay hal mar midkiiba.



wareejiyaha 1
(spinner 1)



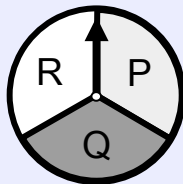
wareejiyaha 2
(spinner 2)

a) Maxay labada laamood ee sanduuqa ku yaal u taagan yihiin?

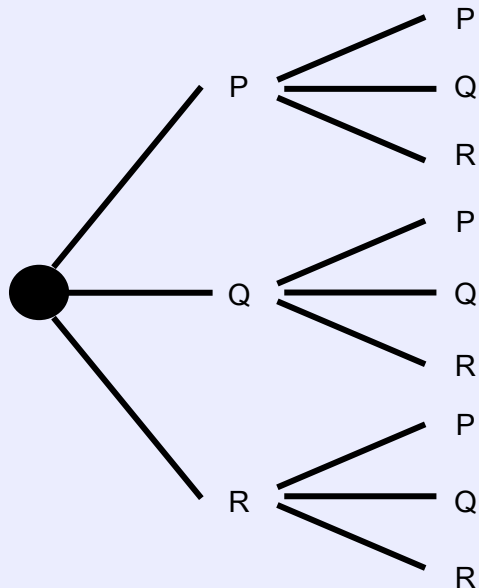
Labada natiijo ee wareejiyaha 1
b) Dhamaystir geedka natiijada (outcome tree).

3) Wareejiyaha 3 (Spinner 3) ayaa laba jeer la wareejiin doonaa.

- Dhamaystir geedka natiijada (outcome tree).
- Dhamaystir booska muunada (sample space) ee geedkan natiijada.



wareejiyaha 3
(spinner 3)



PP
PQ
PR
QP
QQ
QR
RP
RQ
RR

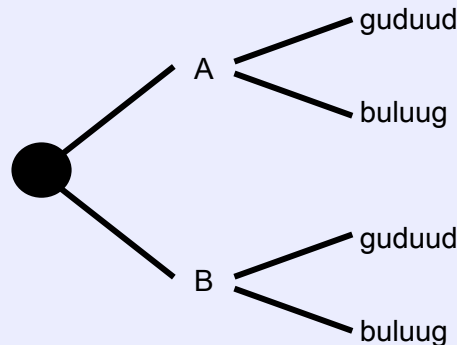
meel kasta (sample space)

4) Wareegyada 4 iyo 5 ayaa hal mar la wareejiyay, waxayna leeyihiin natiijooyinkan:

wareegga 4 = {A, B}

wareegga 5 = {guduud, buluug}

Dhammeystir geedka natiijada iyo meel kasta (sample space).

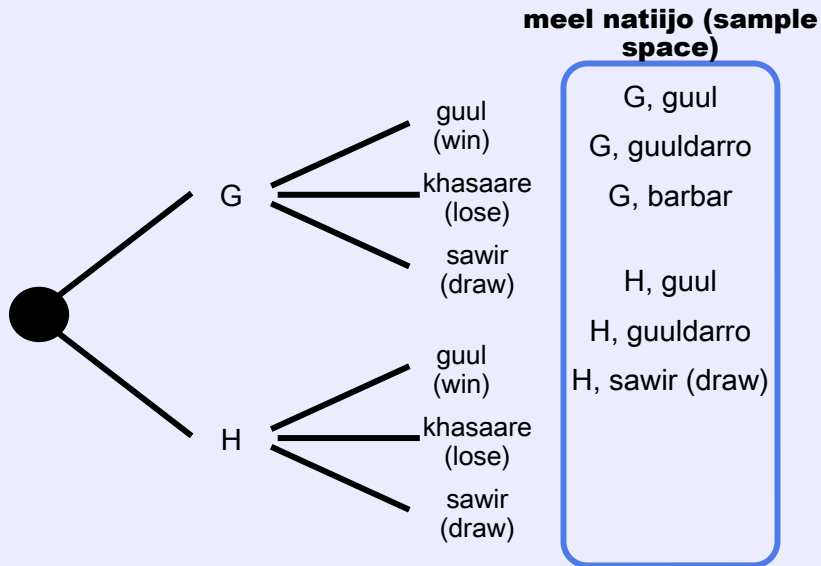


A, guduud
A, buluug

B, guduud
B, buluug

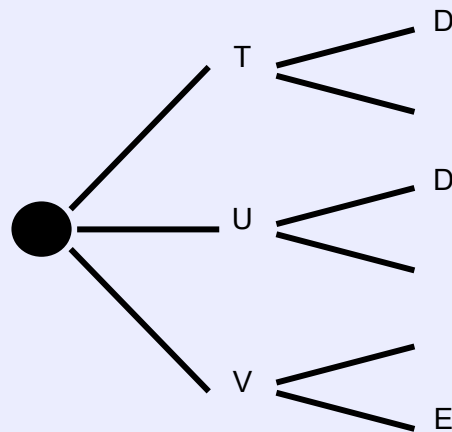
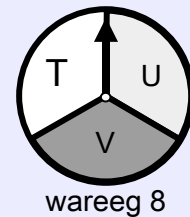
5) Wareegyada 6 iyo 7 ayaa hal mar la wareejiyay.

Dhammeystir geedka natijada oo ka soo qaad meel kasta (sample space).



6) Wareegyada 8 iyo 9 ayaa hal mar la wareejiyay.

Buuxi natiijooyinka wareeg kasta oo ka mid ah geedka natijada.



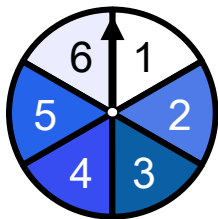
Isticmaalka geed natiijo si loo muujiyo natiiyooyinka laba dhacdo



Geedaha natiiyada ee tijaabooyinka laba-heer

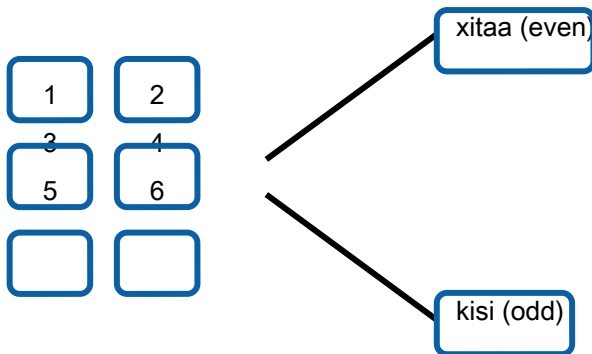


Geedaha natiiyada ee laba dhacdo

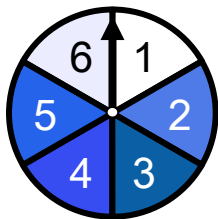


Geedaha natiijada waxay sidoo kale faa'iido weyn u leeyihiin kala-saarka dhammaan natiijooyinka tijaabo ee dhacdooyin kala duwan.

Wareeggan (spinner)
ayaa hal mar la wareejin
doonaa.
Natiijooyinka suurtagalka
ah waa:



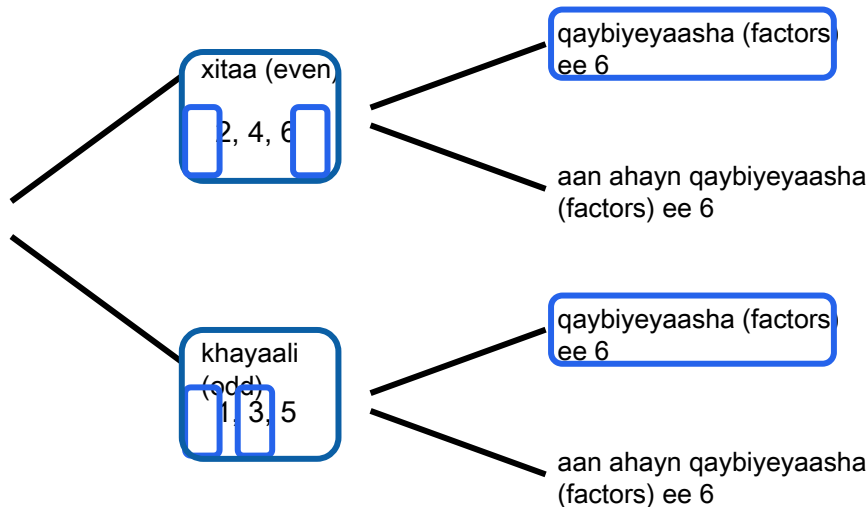
Wareeggu (spinner) wuxuu ku degi karaa tiro xitaa (even)
ama kisi (odd).



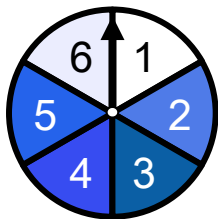
Spinner-gan ayaa la wareegi doonaa hal mar. Natiijooyinka suurtagalka ah waa:

1 2
3 4
5 6

Geedaha natijada ayaa sidoo kale faa'iido weyn u leh kala saarista dhammaan natiijooyinka tijaabo hal-dhacdo ah oo loo kala qaybiyo dhacdooyin kala duwan.



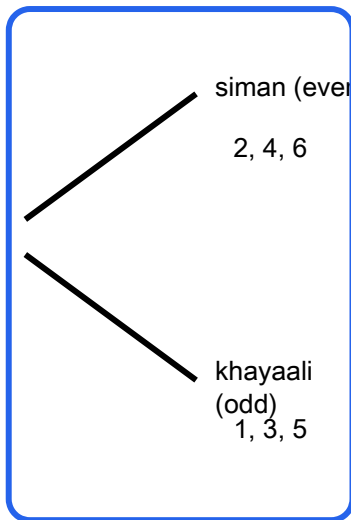
Tirooyinka siman ee spinner-ku ku degan karo, kuwee ayaa ah qaybiyeyasha (factors) ee 6?



Spinner-gan ayaa la wareegi doonaa hal mar. Natijoooyinka suurtagalka ah waa:

1 2
3 4
5 6

Geedaha natijada ayaa sidoo kale faa'iido weyn u leh kala saarista dhammaan natijoooyinka tijaabo hal-dhacdo ah oo loo kala qaybiyo dhacdooyin kala duwan.



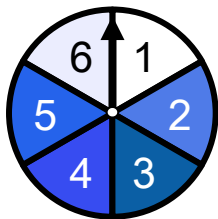
Dhacdo 1: siman (ama aan simanayn)

qaybiyeyasha (factors)
ee 6
2, 6

aan ahayn qaybiyeyasha
(factors) ee 6
4

qaybiyeyasha (factors)
ee 6
1, 3

aan ahayn qaybiyeyasha
(factors) ee 6
5



Geedaha natijada (outcome trees) ayaa sidoo kale faa'iido weyn u leh kala-saarista dhammaan natiijooyinka tijaabada hal-dhacdo (single-event trial) ee dhacdooyin kala duwan.

Wareeggan (spinner)
ayaa hal mar la wareejin
doonaa.
Natiijooyinka suurtagalka
ah waa:

1 2
3 4
5 6

xataa (even)

2, 4, 6

kisi (odd)

1, 3, 5

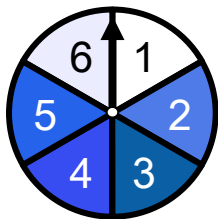
qaybiyayaasha 6
(factors of 6)
2, 6

aan ahayn qaybiyayaasha 6
4

qaybiyayaasha 6
(factors of 6)
1, 3

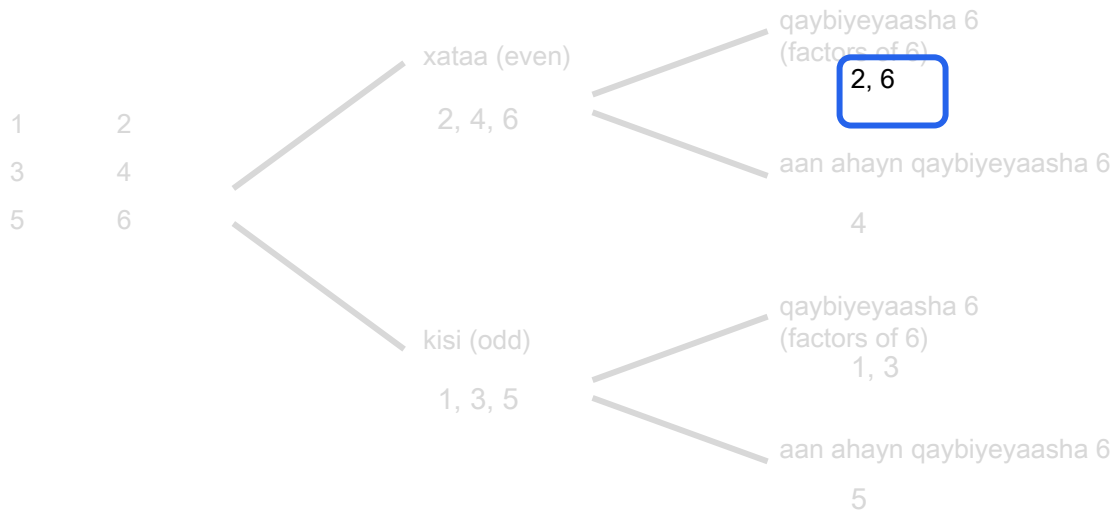
aan ahayn qaybiyayaasha 6
5

Dhacdada 2: qaybiyaha 6 (ama ma aha)

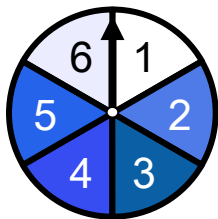


Geedaha natijada (outcome trees) ayaa sidoo kale faa'iido weyn u leh kala-saarista dhammaan natiijooyinka tijaabada hal-dhacdo (single-event trial) ee dhacdooyin kala duwan.

Wareeggan (spinner)
ayaa hal mar la wareejin
doonaa.
Natiijooyinka suurtagalka
ah waa:

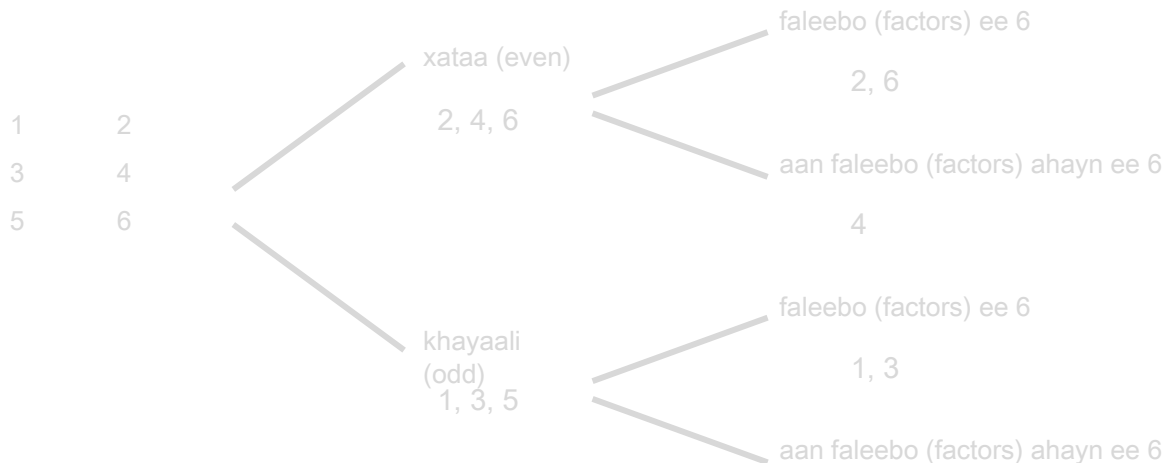


2 iyo 6 waa natiijooyinka labada dhacdood ee wareeggu (spinner) ku soo degay qaybiye xataa (even factor) oo 6 ah.



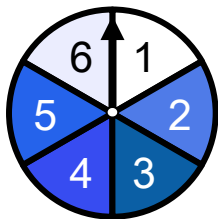
Geedaha natijada ayaa sidoo kale faa'iido u leh kala-saarista dhammaan natijoooyinka tijaabo hal-dhacdo ah oo loo kala qaybiyo dhacdooyin kala duwan.

Wareeggan (spinner)
ayaa hal mar la wareegi
doonaa.
Natijoooyinka suurtagalka
ah waa:



5

5 waa natijada labada dhacdo ee wareeggu ku soo degay tiro khayaali (odd) ah oo aan faleeb (factor) ahayn ee 6.



Geedaha natijada ayaa sidoo kale faa'iido u leh kala-saarista dhammaan natiiyooyinka tijaabo hal-dhacdo ah oo loo kala qaybiyo dhacdooyin kala duwan.

Wareeggan (spinner)
ayaa hal mar la wareegi
doonaa.
Natiiyooyinka suurtagalka
ah waa:

1 2
3 4
5 6

xitaa (even)
2, 4, 6

faleebo (factors) ee 6

2, 6

aan faleebo (factors) ahayn ee 6

4

khayaali
(odd)
1, 3, 5

faleebo (factors) ee 6

1, 3

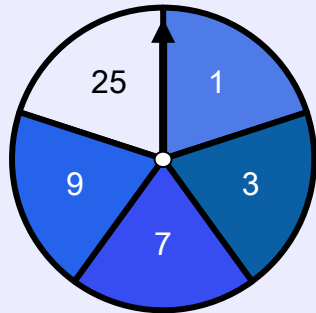
aan faleebo (factors) ahayn ee 6

5

Marka la isticmaalayo geed natijada si loo kala saaro hal tijaabo dhacdooyin kala duwan, dhacdo kasta waxaa loo kala qaybin karaa

hal dhacdo

iyo dhacdadeeda ka soo horjeeda (opposite event).



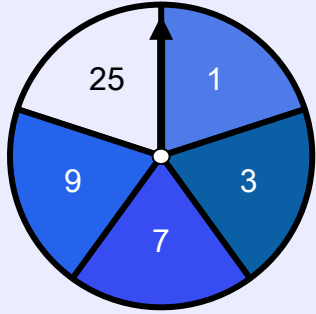
Wareeggan (spinner) hal mar ayaa la wareejiyaa.

Geedka natiijada (outcome tree) wuxuu muujinayaa dhacdada (event) ah in wareeggu ku soo degayo qaybiyaha (factor) 18.

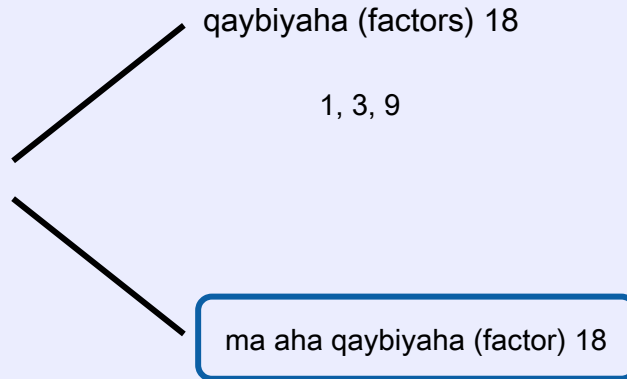
Waa maxay natiijooyinka (outcomes) dhacdadan?

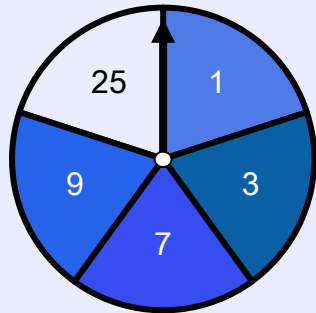
qaybiyaha (factors) 18

1, 3, 9

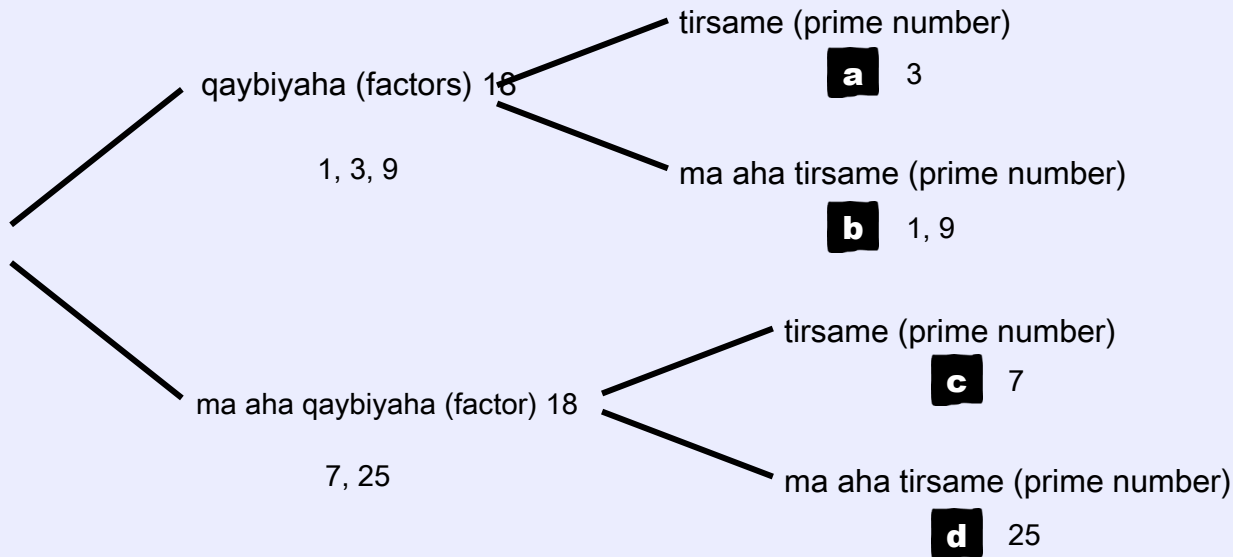


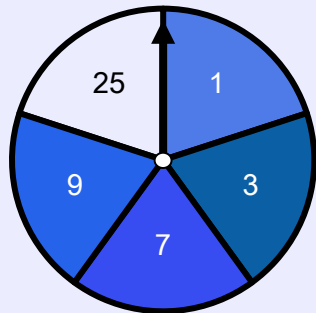
Waa maxay dhacdada ka soo horjeeda (opposite event) ee ku soo degista qaybiyaha (factor) 18?





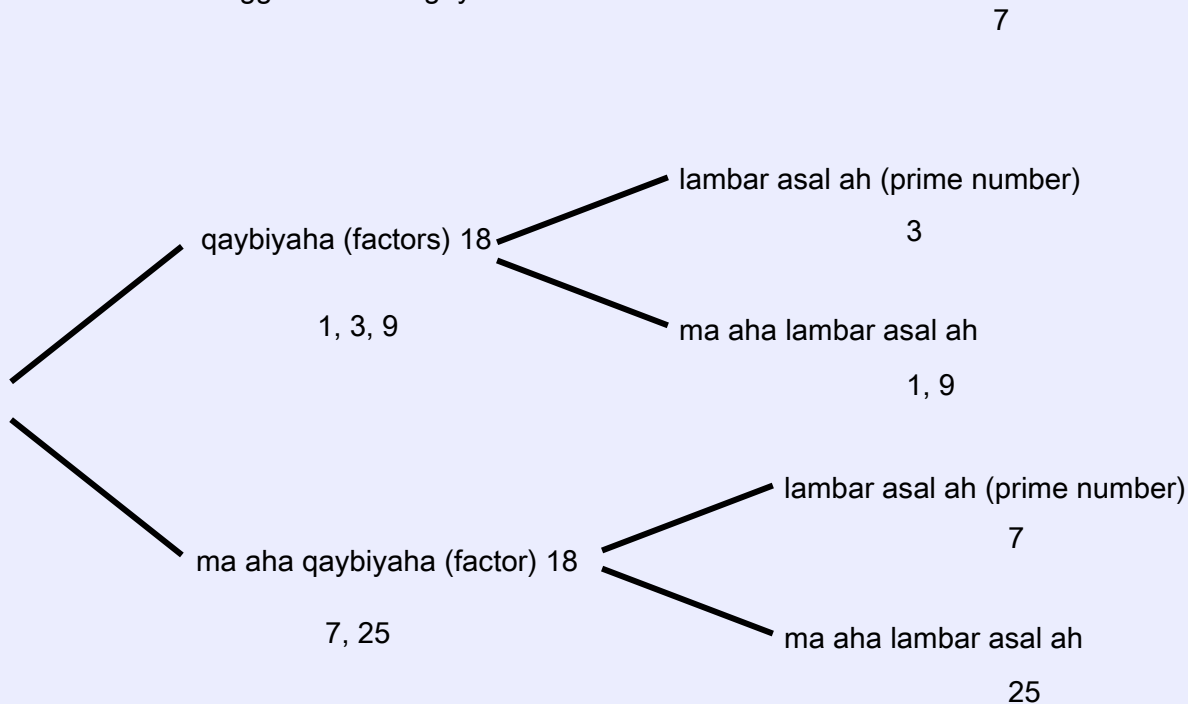
Dhig natiijooyinka (outcomes) dhacdooyinka (events) saxda ah.





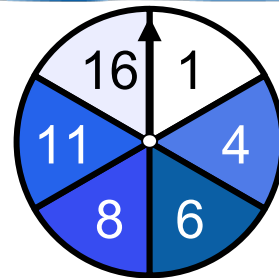
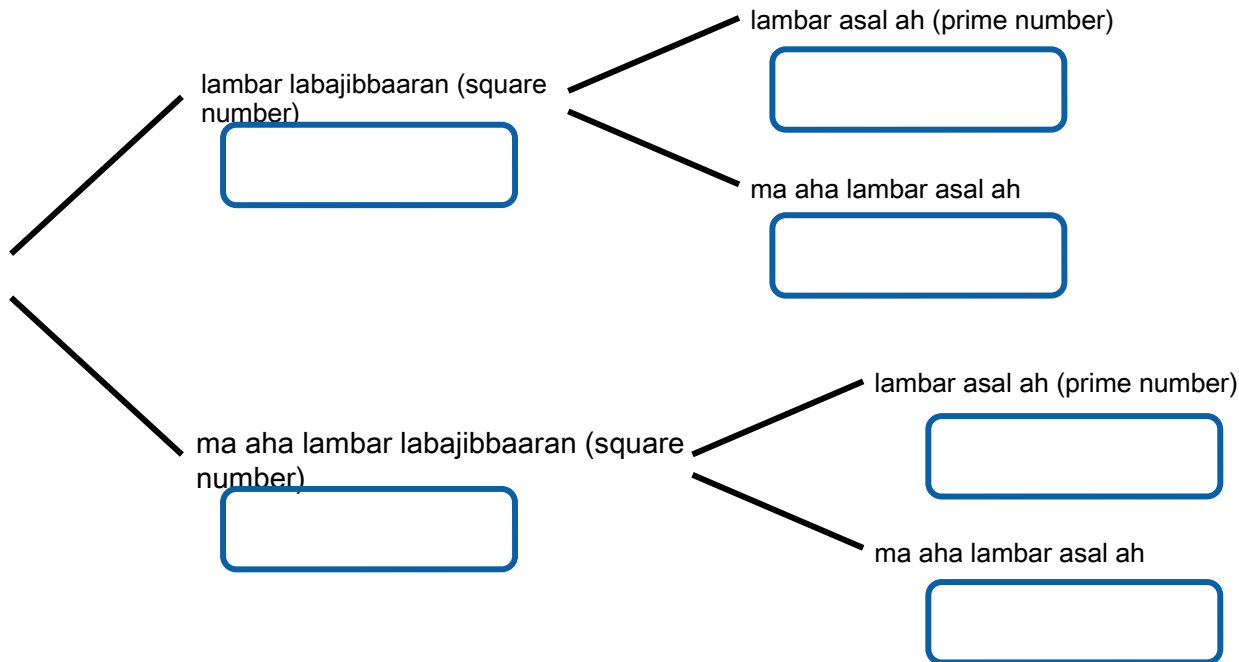
Wareeggu (spinner) wuxuu ku soo degayaa tiro aan ahayn qaybiyaha (factor) 18, laakiin waa tirsame (prime number).

Lambar ee wareeggu ku soo degay?



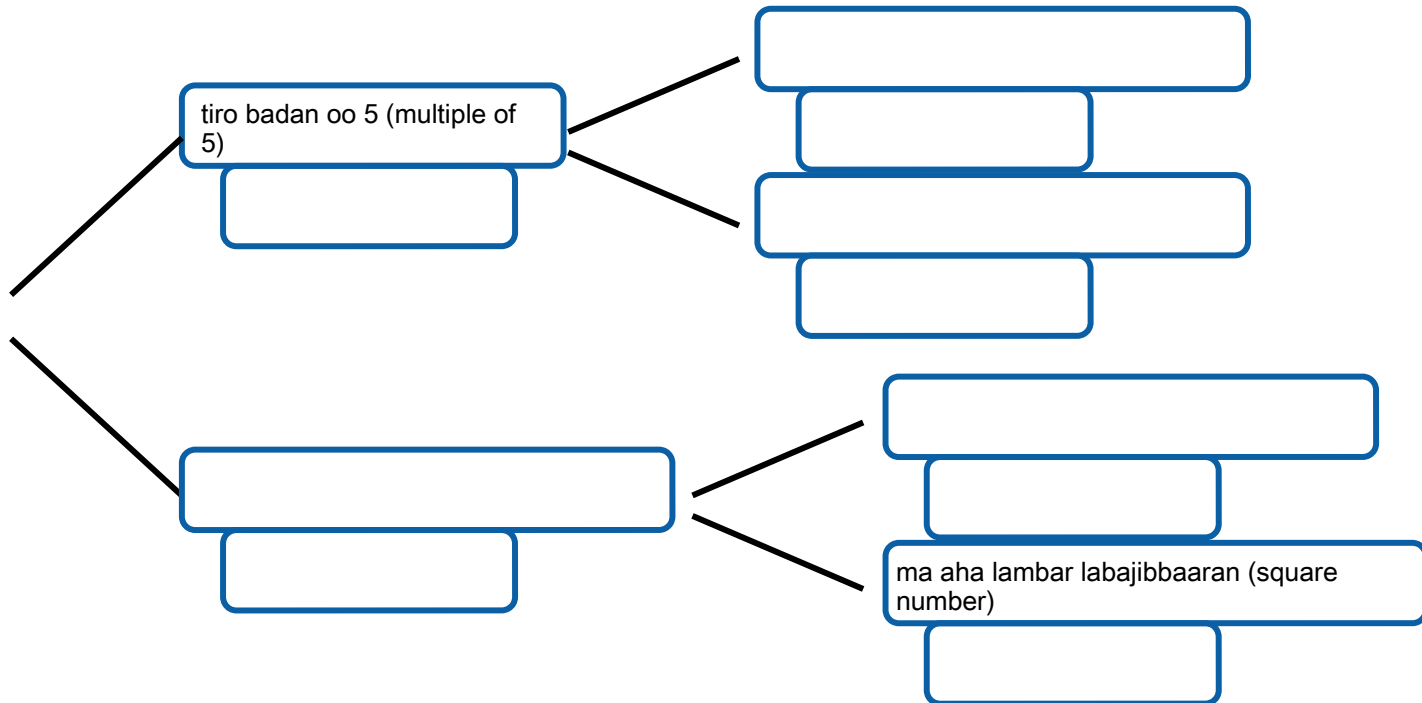
1) Wareeggan ayaa hal mar la wareegi doonaa.

a) Buuxi geedka natiijadan.



b) Wareeggu wuxuu ku soo degayaa 11. Isticmaal geedka natiijada, laba dhacdo oo hadda dhacay waa kuwee?

2) Wareeggu wuxuu leeyahay natiijooyin: {5, 9, 15, 25, 28, 441}
Buuxi geedka natiijadan.



3) Wareeggu wuxuu leeyahay natiijooyin: {1, 4, 8, 16, 25, 27, 30, 36, 39, 64}.

Yacquub wuxuu wareegi doonaa wareeggan oo wuxuu raadinayaa dhacdooyinka ku degista lambar labajibbaaran (square number) oo sidoo kale ah lambar saddex jibaaran (cube number).

a) Sawir oo dhammaystir geed natiijo (outcome tree) tijaabadan.

b) Immisa natiijo ayaa u dhigma dhacdooyinka Jacob raadinayo?



Jacob

4) In a cafe they have the following drinks on the menu.

a) Samee geed natiijo (outcome tree) iyadoo dhacdada koowaad tahay 'wuxuu leeyahay gacanta' iyo tan labaad 'wuxuu leeyahay balanbaalis'.

b) Geedkaaga ku wareeji natiijooyinka muujinaya balanbaalis laakiin aan lahayn gacanta.



A



B



C



D



E



F



G



H



I

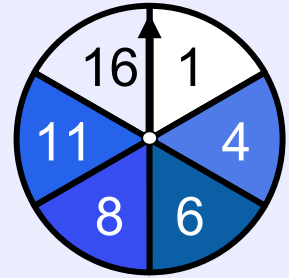
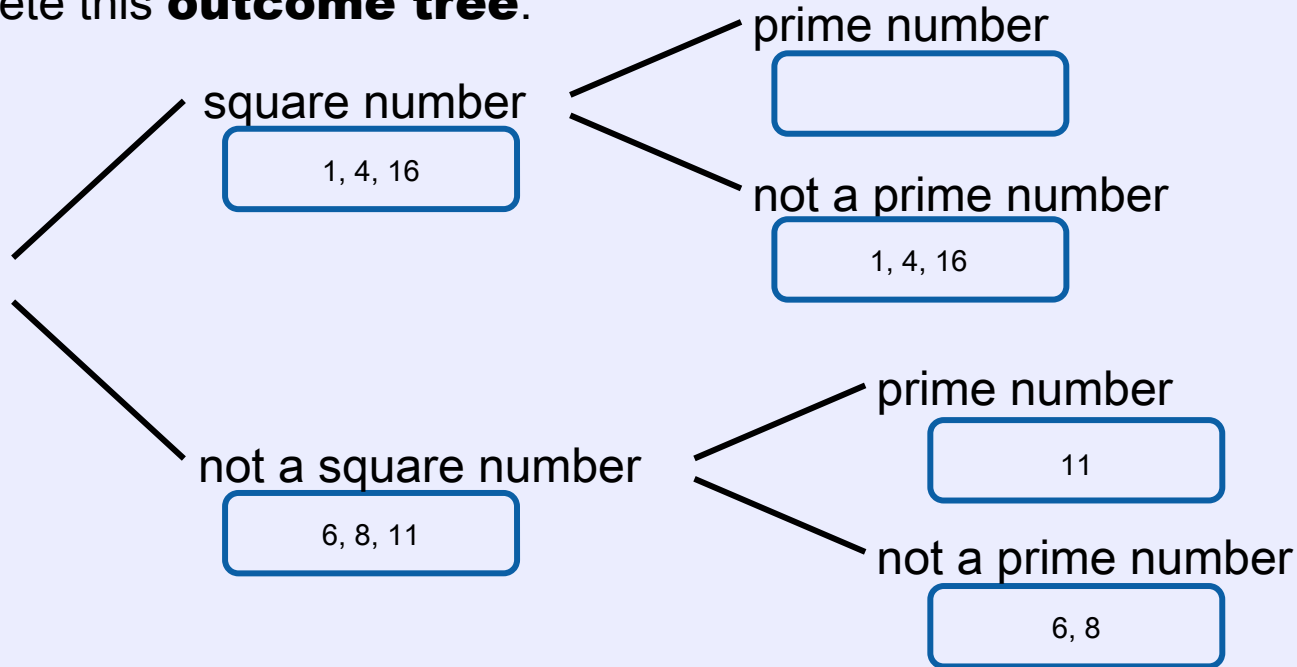
Hawsha B Outcome trees from two events



Jawaab

1) Wareeggan (spinner) ayaa hal mar la wareejiyay.

a) Complete this **outcome tree**.

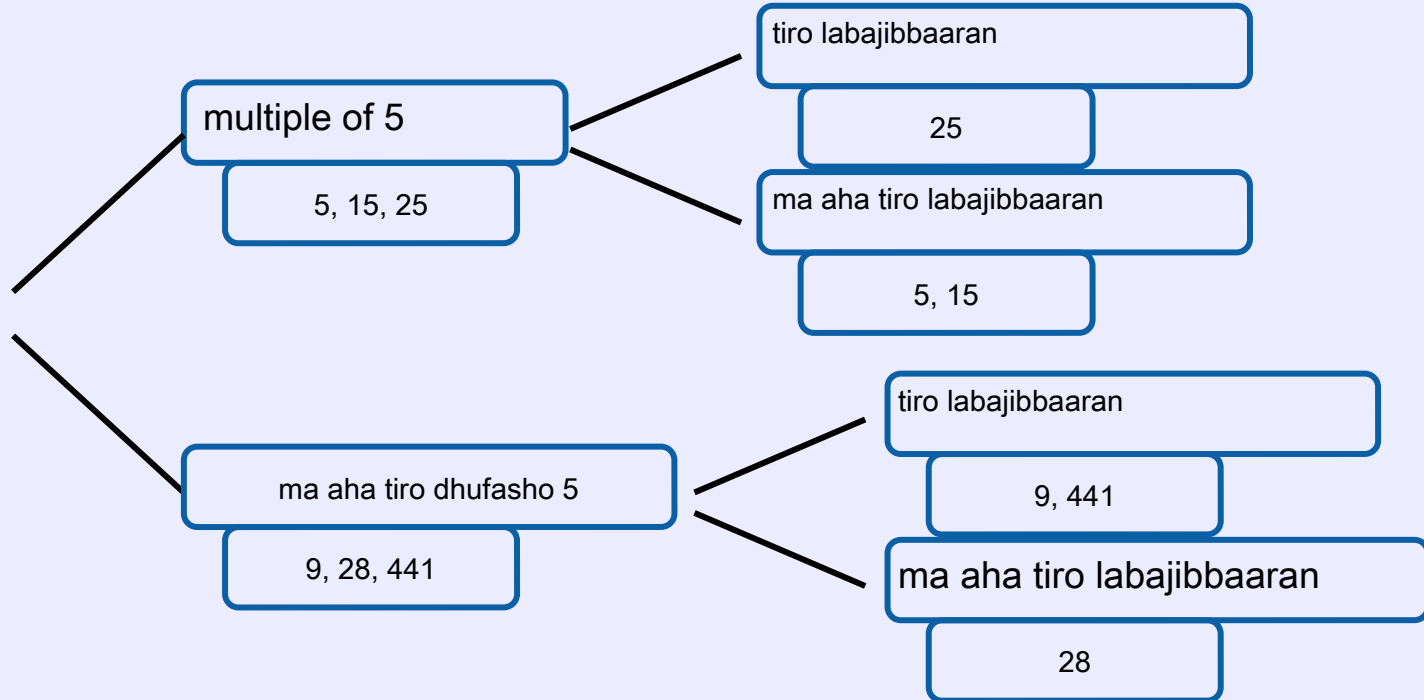


b) Wareeggu wuxuu ku degay 11. Adigoo isticmaalaya geedka natijada, laba dhacdo oo hadda dhacay waa kuwo?

Tiro aan ayeyn labajibbaaran (square), laakiin ah tiro asal ah (prime).

2) Wareeggu wuxuu leeyahay natiijooyin: {5, 9, 15, 25, 28, 441}

Complete this **outcome tree**.

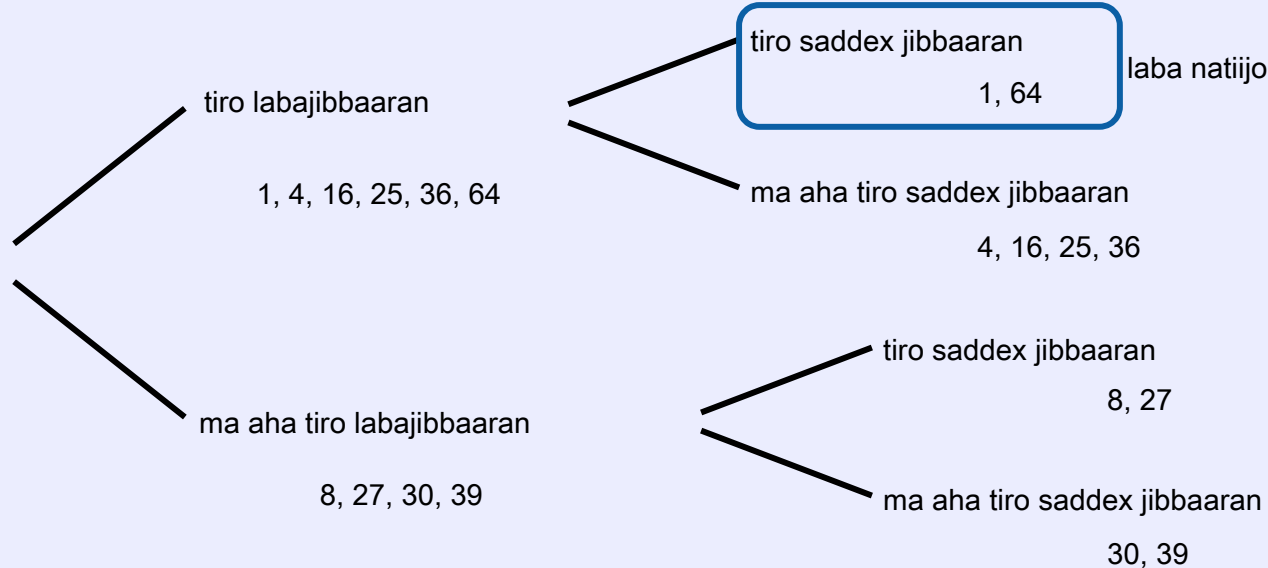


3) Wareeggu wuxuu leeyahay natiijooyin: {1, 4, 8, 16, 25, 27, 30, 36, 39, 64}.

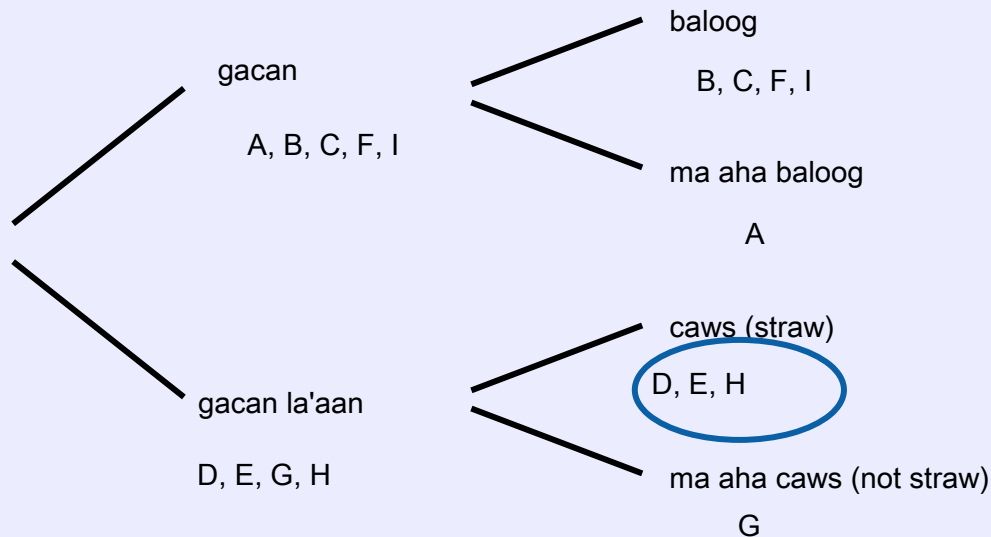
Yacquub wuxuu wareejin doonaa wareeggan oo wuxuu raadinayaa dhacdooyinka ku degista tiro labajibbaaran oo sidoo kale ah tiro saddex jibbaaran.



Yacquub



4) Makafatiga waxay ku leeyihiin cabitaannadan liiska. a) Samee geed natiijooyin ah iyadoo dhacdada koowaad ay tahay 'wuxuu leeyahay gacan' iyo tan labaad 'wuxuu leeyahay baloog'.



b) Geedkaaga ku wareeji natiijooyinka muujinaya caws (straw) laakiin aan lahayn gacan (handle).

Soo koobid

Isticmaalka geedka natiijada (outcome tree) si loo muujiyo natiijooyinka laba dhacdo (events)

Laamaha geedka natiijada (outcome tree) waxay muujiyaan natiijooyinka tijaabada (trial). Marka la eego laba dhacdo (events) oo ka yimid isla tijaabada, jaantuska geedku (tree diagram) wuxuu kaa caawiyaa inaad abaabusho booska muunada (sample space) iyadoo la tixgelinayo labadaas dhacdo iyo isku-darkooda. Marka la eego tijaabo laba- marxalad ah (two-stage trial), geedku wuxuu kaa caawin karaa helista booska muunada si nidaamsan, adoo tixgelinaya labada qaybood ee tijaabada iyo natiijooyinkooda mid mid.

Booşka muunada (sample space) waxaa laga samayn karaa geed kasta oo natiijada ah oo matalaya marxalado badan oo tijaabada ah.