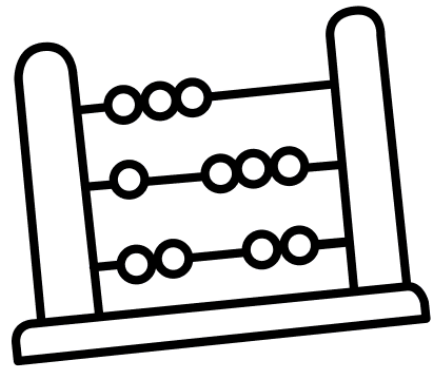


Saddexagalyo isku mid ah (ASA iyo AAS)

Maths

Cutub: Sifooyin joomatari: isku ekaansho iyo aragtida
Pythagoras



Natiijo

Waxaan qiimeyn karaa oo isticmaali karaa shuruudaha saddexagalka isku midka ah (ASA iyo AAS).

Erayada muhiimka ah

Haddii qaab uu si sax ah ugu habboonaado qaab kale iyadoo la isticmaalayo wareeg, milicsi, ama turjumaad, markaas qaababku waa isku mid.

Saddexagalyo isku mid ah (ASA iyo AAS)



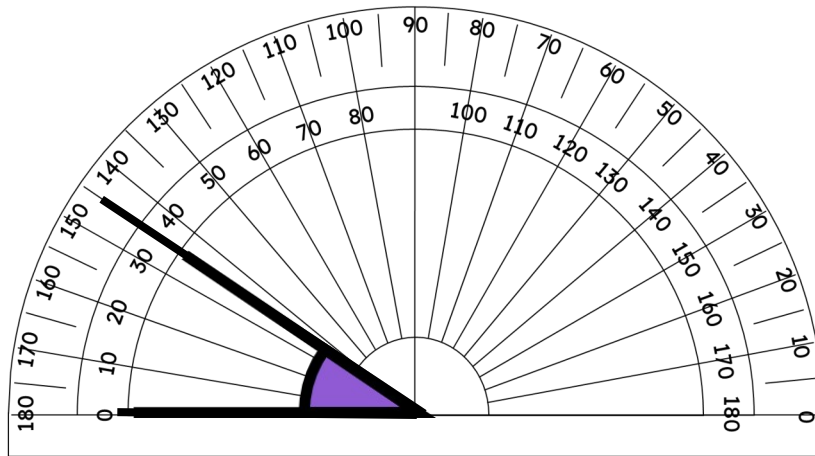
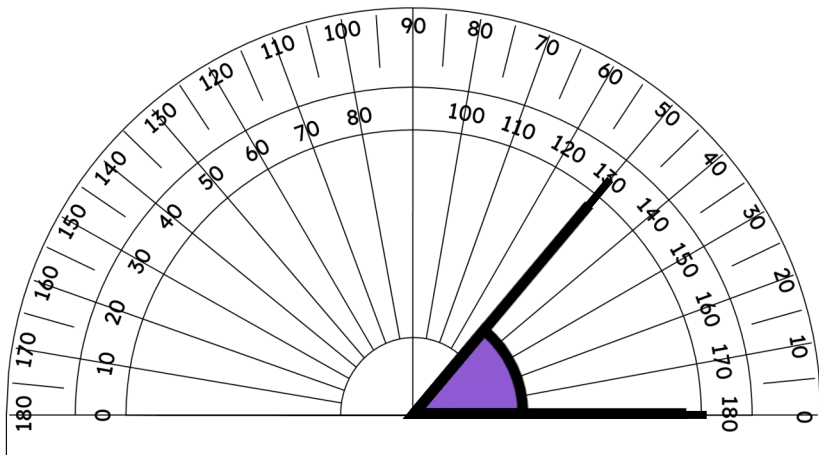
Dhisidda saddexagalyo



Caddaynta isku ekaanshaha ASA/AAS

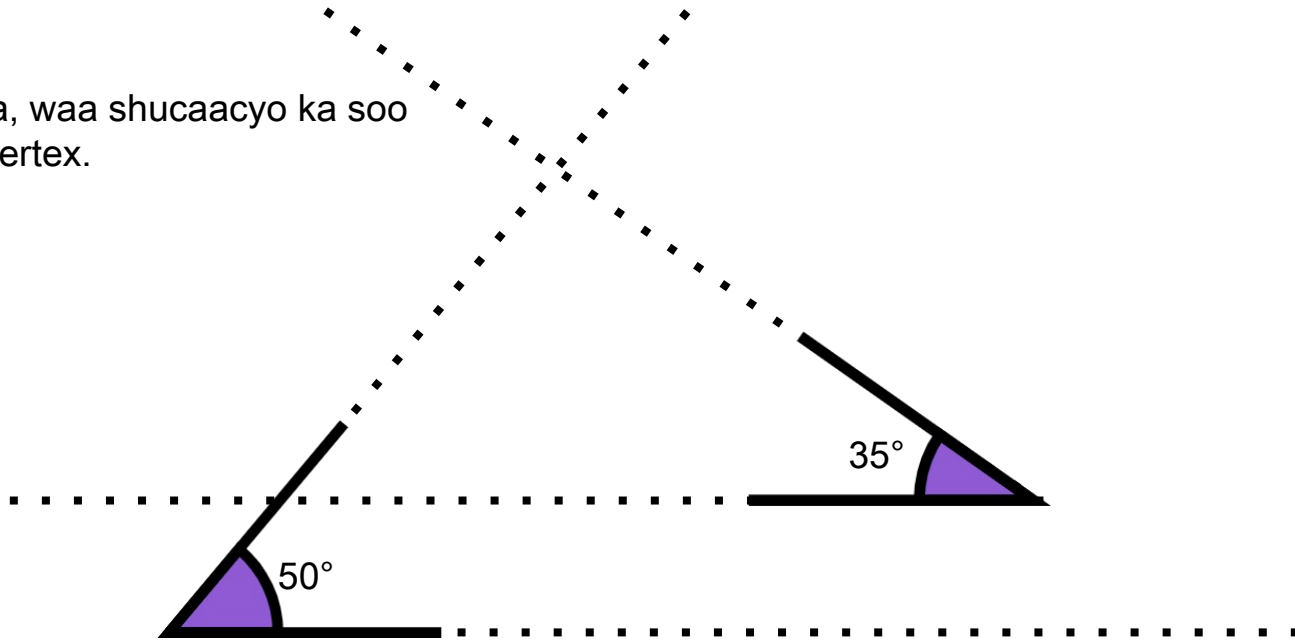
Haddii aan rabno in aan dhisno saddexagal leh xagal 50° iyo xagal 35° , sidee ku samayn karnaa?

Waxaan abuuri karnaa labada xagal iyadoo la isticmaalayo protractor.



Haddii aan rabno in aan dhisno saddexagal leh xagal 50° iyo xagal 35° , sidee ku samayn karnaa?

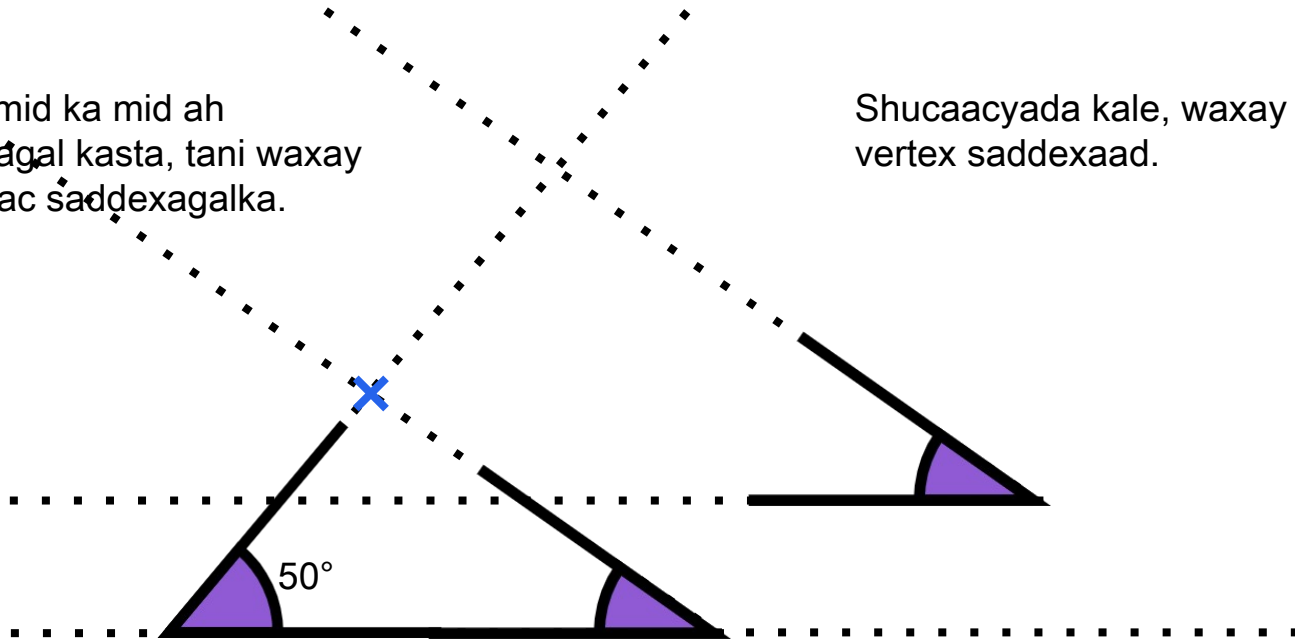
Lugaha xagalka, waa shucaacyo ka soo baxa meesha vertex.



Haddii aan rabno in aan dhisno saddexagal leh xagal 50° iyo xagal 35° , sidee ku samayn karnaa?

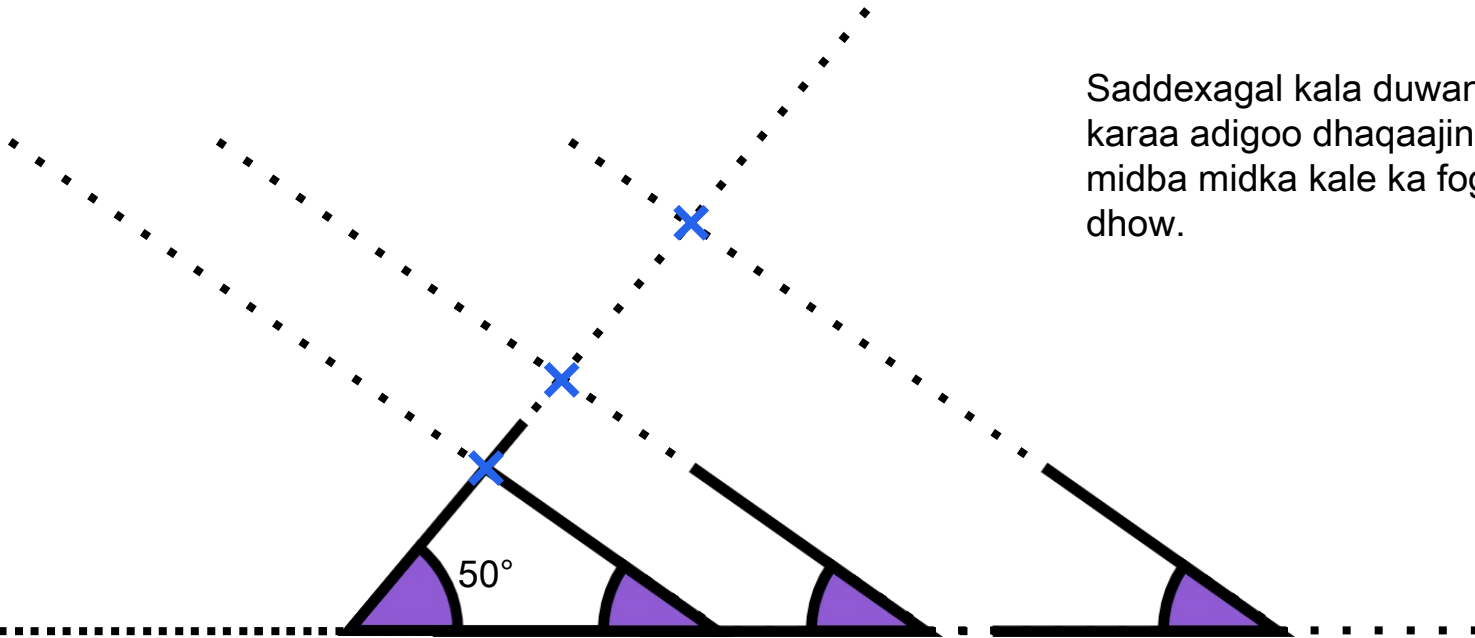
Adigoo safaya mid ka mid ah shucaacyada xagal kasta, tani waxay samaysaa dhinac saddexagalka.

Shucaacyada kale, waxay isku gooyaan vertex saddexaad.

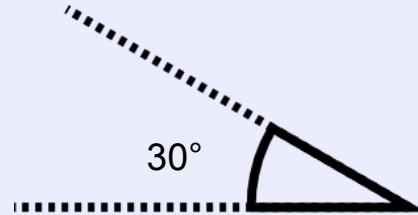
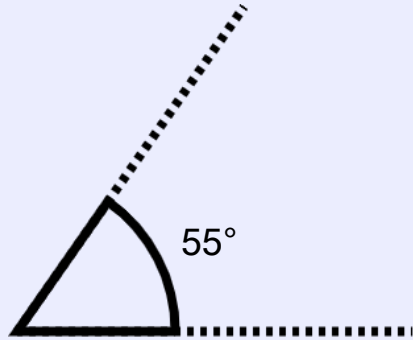


Haddii aan rabno in aan dhisno saddexagal leh xagal 50° iyo xagal 35° , sidee ku samayn karnaa?

Saddexagal kala duwan ayaa la samayn karaa adigoo dhaqaajinaya labada xagal midba midka kale ka fog ama isku dhow.



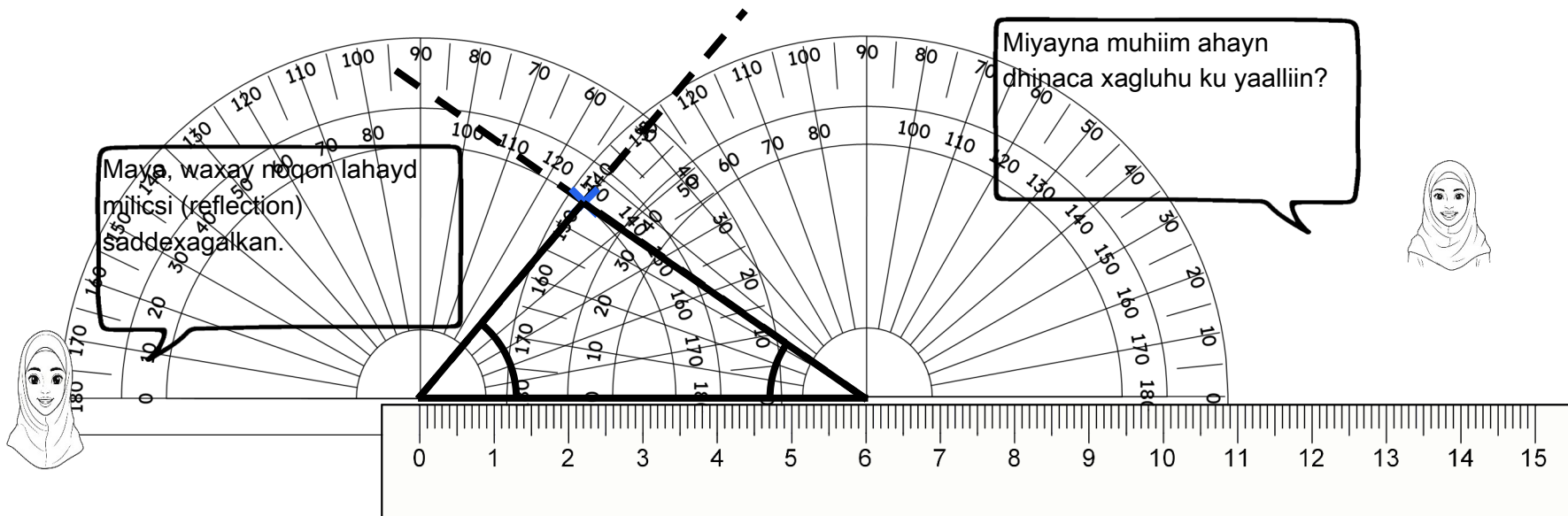
Immisa saddexagal oo kala duwan ayaa la abuuri karaa iyadoo la isticmaalayo labadan xagal?



tiro aan dhammaad lahayn

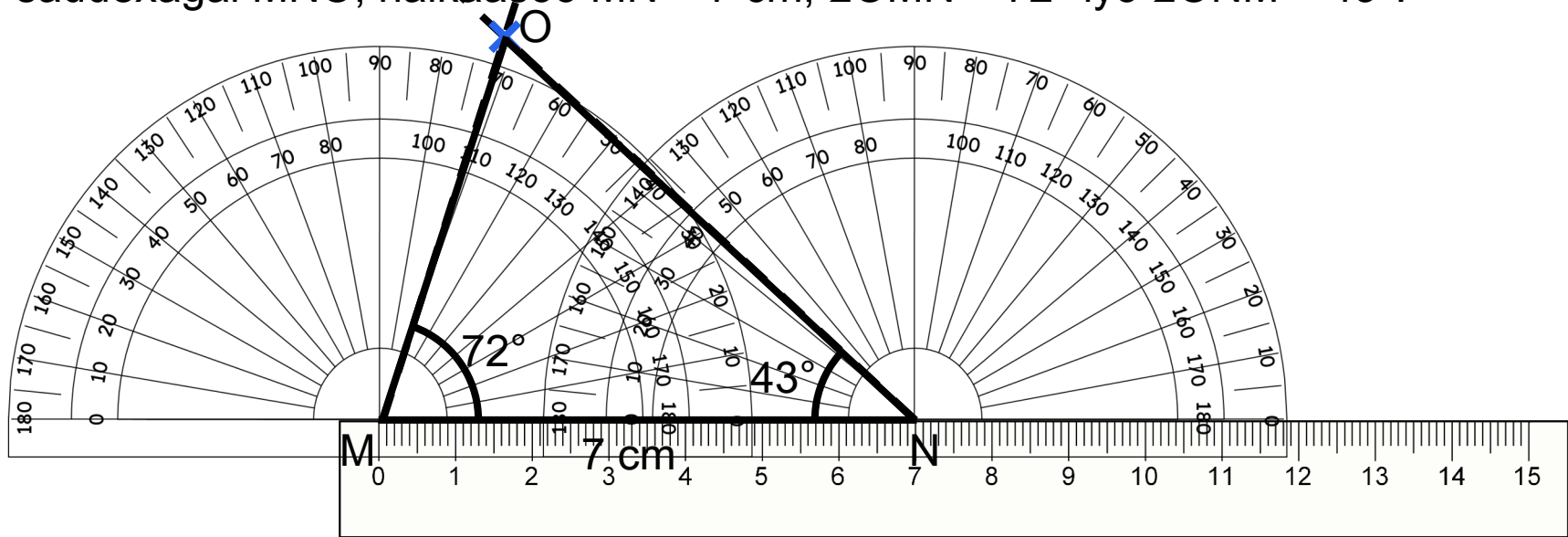
Haddii dhererka dhinaca u dhexeeya labada gees (vertices) la ogaado, kaliya hal saddexagal ayaa la dhisi doonaa.

Tusaale, dhinaca u dhexeeya labada xagal 50° iyo 35° waa 6 cm.

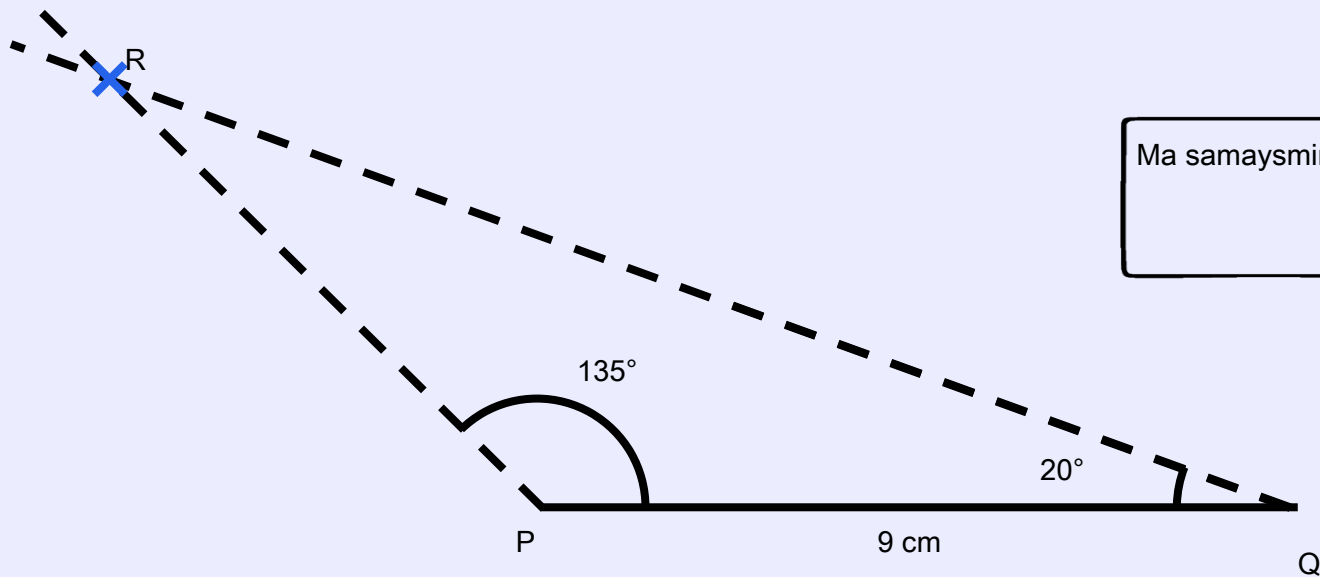


Saddexagal ayaa la dhisii karaa, haddii aan ognahay xaglaha dhinaca kasta ee dhererka dhinaca la yaqaan.

Dhis saddexagal MNO, halkaasoo $MN = 7$ cm, $\angle OMN = 72^\circ$ iyo $\angle ONM = 43^\circ$.



Nuur wuxuu isku dayay inuu dhiso saddexagal PQR, halkaasoo $PQ = 9\text{ cm}$, $\angle RPQ = 135^\circ$ iyo $\angle RQP = 20^\circ$.



Ma samaysmin saddexagal.



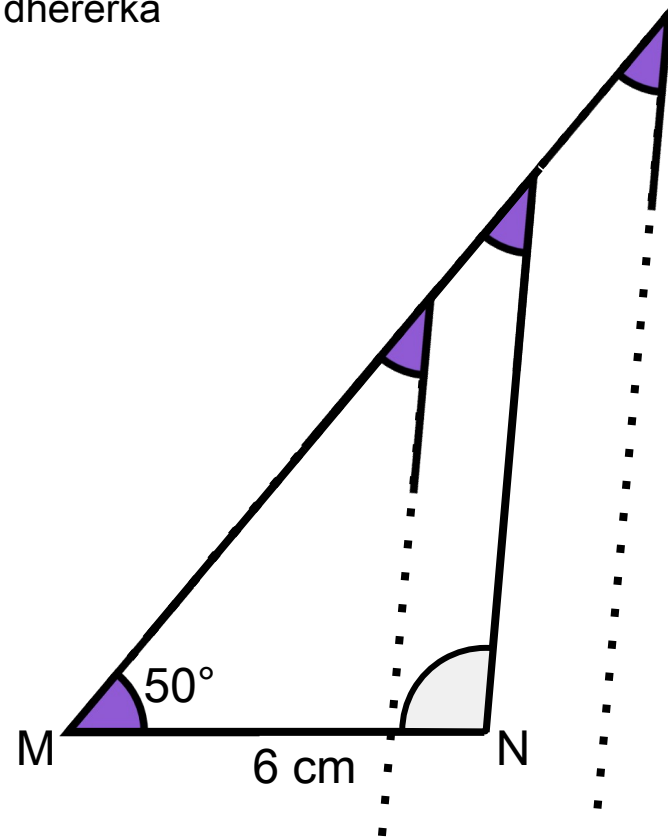
Maxaa khalad ah oo Nuur sameeyay?

Wuxuu u baahan yahay inuu kordhiyo khadadka shucaaca (ray lines), si ay isu goyaan si loo helo R.

Dhisidda saddexagalka

Ma la dhisi karaa saddexagal, haddii aan ognahay dhererka gees iyo laba xagal oo aan ku yaallayn cidhifyada xariiqdaas AAS?

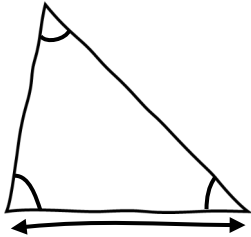
 Hagaajinta labada xagal



Ma la dhisi karaa saddexagal, haddii aan ognahay AAS?

Haa, waayo waxaan xisaabin karnaa xagasha saddexaad.

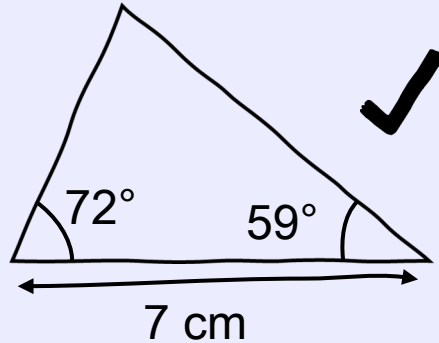
Tusaale ahaan: Dhis saddexagal MNO, halkaasoo $MN = 7$ cm, $\angle MON = 70^\circ$ iyo $\angle ONM = 45^\circ$.



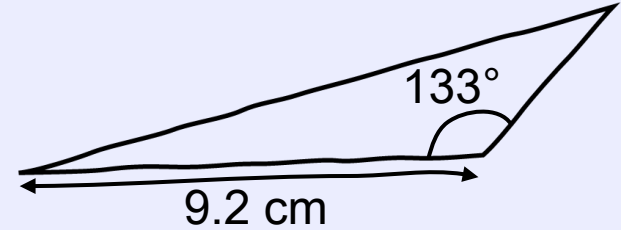
Hadda, waxaan dhisi karnaa, iyadoo la adeegsanayo 7 cm, 65° iyo 45° xagasha.

Kee ka mid ah qoraalladan ayaa leh macluumaad ku filan si loo dhisi karo?

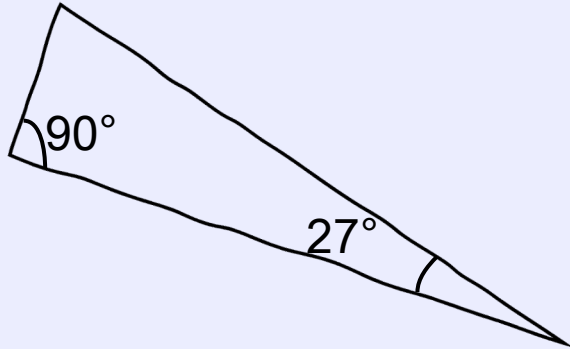
a



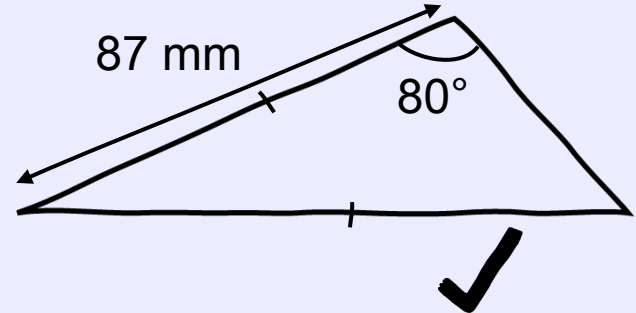
b



c



d



1) Dhis saddexagallada soo socda:

a) Saddexagal ABC, halkaasoo $AB = 7.5$ cm, $\angle CAB = 54^\circ$ iyo $\angle ABC = 47^\circ$

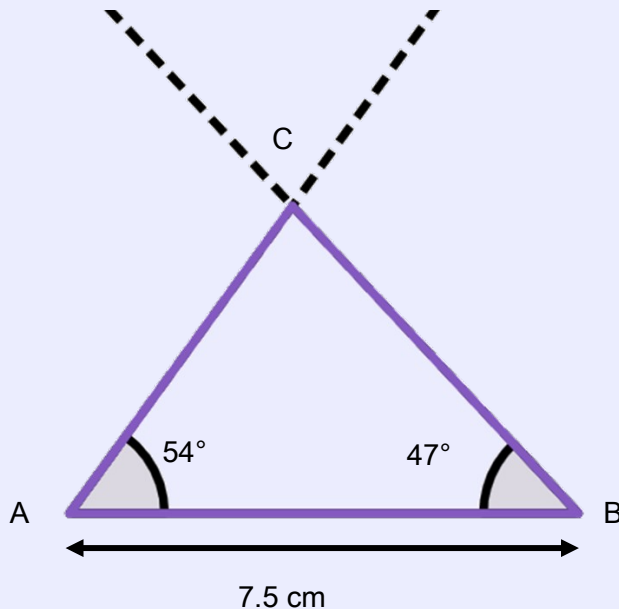
b) Saddexagal DEF, halkaasoo $\angle DEF = 67^\circ$, $\angle EFD = 25^\circ$ iyo $EF = 8.2$ cm

c) Saddexagal GHI, halkaasoo $GH = 7.1$ cm, $\angle GHI = 113^\circ$ iyo $\angle HIG = 42^\circ$

d) Saddexagal JKL, halkaasoo $\angle JKL = 38^\circ$, $JL = 5.6$ cm iyo $KJ = KL$

1) Dhis saddexagallada soo socda:

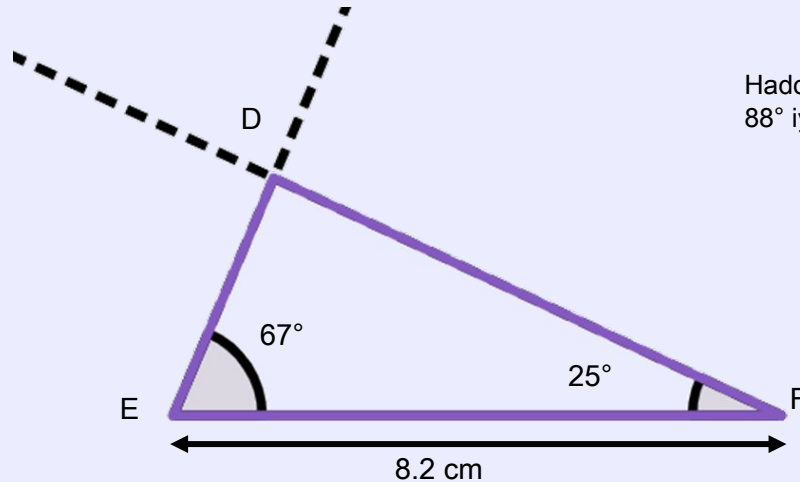
a) Saddex-xagal ABC, halka $AB = 7.5$ cm, $\angle CAB = 54^\circ$ iyo $\angle ABC = 47^\circ$



Haddii aad qiyaasto $\angle ACB$ waa inay noqotaa 79° iyo BC waa inay noqotaa 6.2 cm

1) Dhis saddex-xagalladan soo socda:

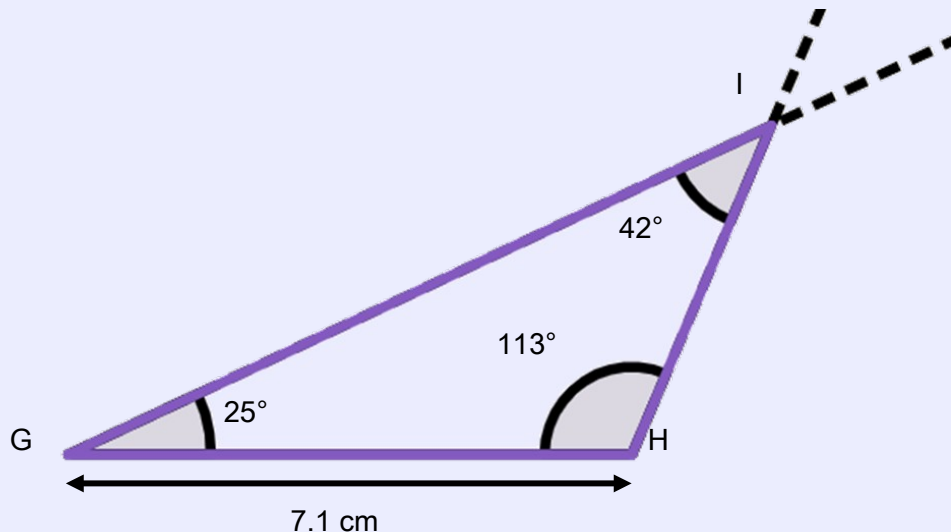
b) Saddex-xagal DEF, halka $\angle DEF = 67^\circ$, $\angle EFD = 25^\circ$ iyo $EF = 8.2$ cm



Haddii aad qiyaasto $\angle EDF$ waa inay noqotaa 88° iyo DE waa inay noqotaa 3.5 cm

1) Dhis saddex-xagalladan soo socda:

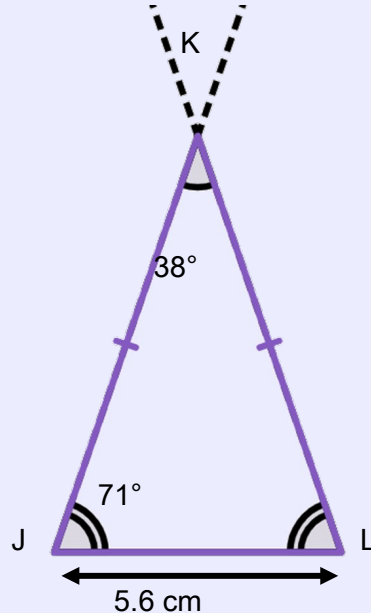
c) Saddex-xagal GHI, halka $GH = 7.1$ cm, $\angle GHI = 113^\circ$ iyo $\angle HIG = 42^\circ$



Haddii aad qiyaasto GI waa inay noqotaa 9.8 cm iyo HI waa inay noqotaa 4.5 cm

1) Dhis saddex-xagalladan soo socda:

d) Saddex-xagal JKL, halka $\angle JKL = 38^\circ$, $JL = 5.6$ cm iyo $KJ = KL$



Haddii aad qiyaasto KJ iyo KL labaduba
waa inay noqdaan 8.6 cm

Qaabka casharka

Saddex-xagallada isku-xidhan (Congruent triangles) (ASA iyo AAS)



Dhisidda saddex-xagallada

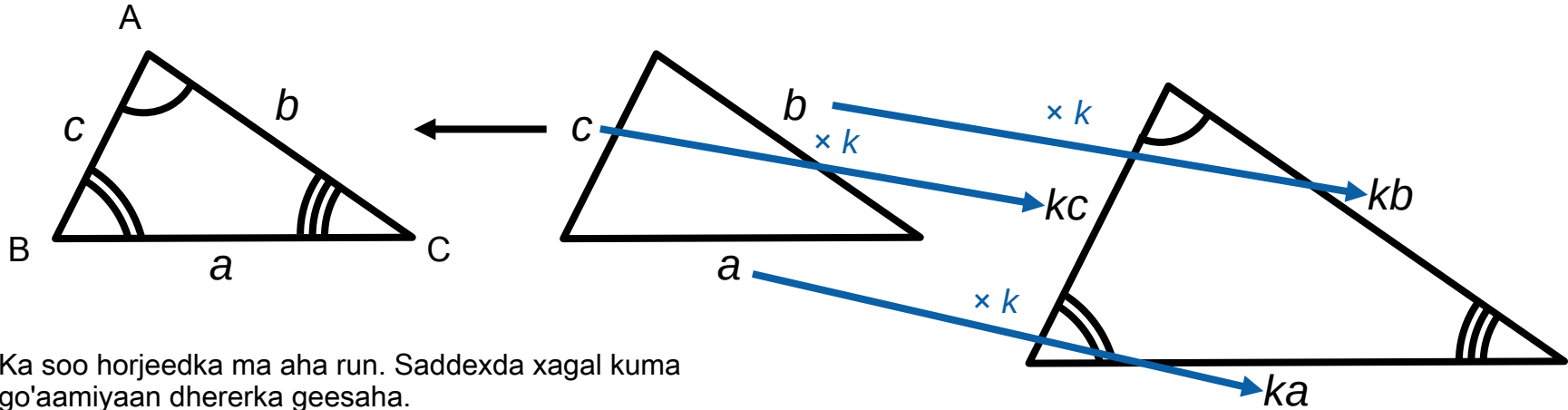


Cadeynta isku-xidhnaanta (congruence) iyadoo la adeegsanayo ASA/AAS

Cadeynta isku midnimada (congruence) iyadoo la adeegsanayo ASA/AAS

Laba saddexagal ayaa la tusi karaa inay isku mid yihiin (congruent) haddii dhammaan geesaha u dhigma ay isku mid yihiin.

Saddexda gees ee saddexagalka, waxay go'aamiyaan xaglaha gudaha sidoo kale.

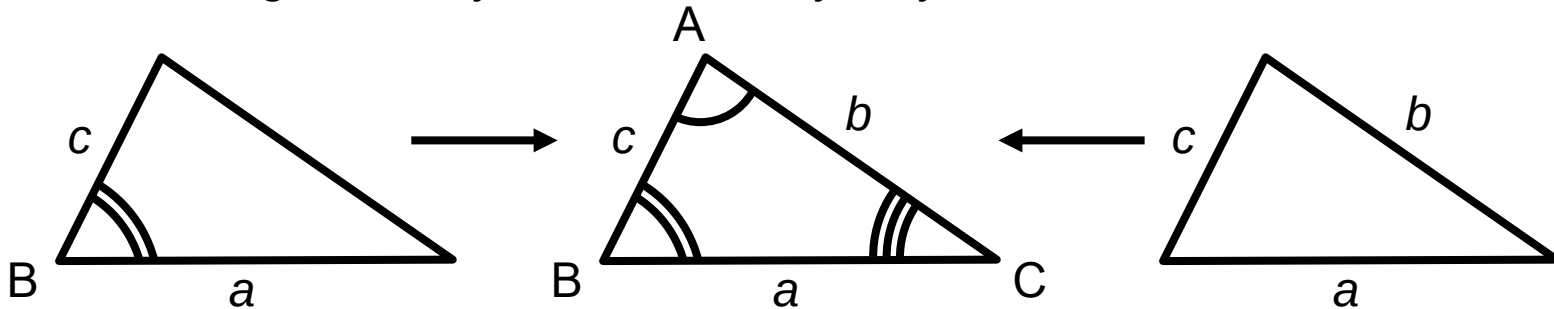


Ka soo horjeedka ma aha run. Saddexda xagal kuma go'aamiyaan dhererka geesaha.

Weyneyn (Enlargement) waxay yeelan doonaan xaglaha isku midka ah.

Cadeynta isku midnimada (congruence) iyadoo la adeegsanayo ASA/AAS

Si loo hubiyo in saddexagallada aysan kaliya isku mid ahayn (similar), ugu yaraan hal dherer oo gees ah ayaa loo baahan yahay.



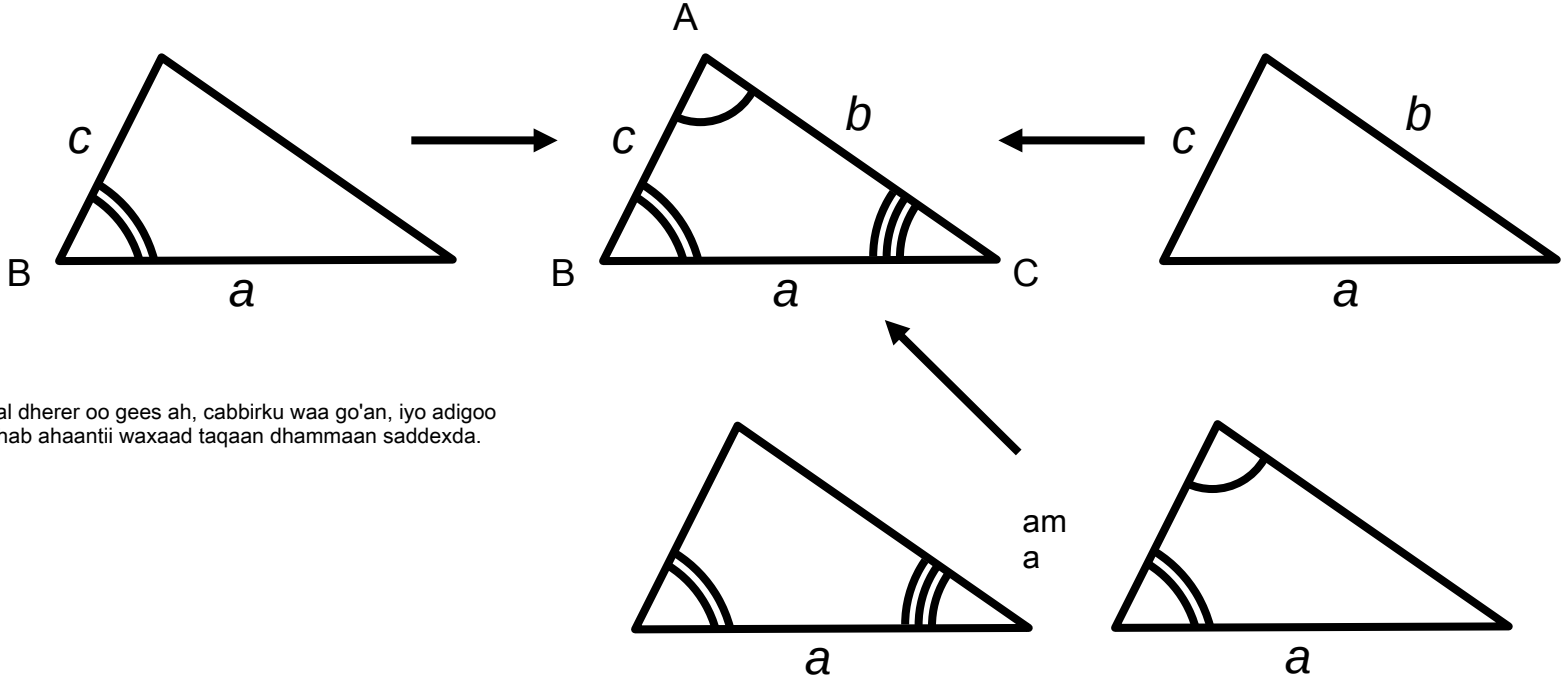
Marka laba gees iyo xagasha u dhaxaysa la ogaado, geeska saddexaad waa go'an, taas oo go'aamisa labada xagal ee kale.

Cadeynta isku midnimada (congruence) iyadoo la adeegsanayo ASA/AAS



Sharaxaad

Si loo hubiyo in saddexagallada aysan kaliya isku mid ahayn (similar), ugu yaraan hal dherer oo gees ah ayaa loo baahan yahay.



Haddii aad taqaan hal dherer oo gees ah, cabbirku waa go'an, iyo adigoo taqaan laba xagal, dhab ahaantii waxaad taqaan dhammaan saddexda.

Run mise been?

Si aad u caddeeyso in laba saddexagal ay isku mid yihiin (congruent), waa inaad taqaan ugu yaraan hal xagal oo u dhigma.



Run



Been



Sabab u sheeg jawaabtaada

a

Ogaanshaha dhammaan saddexda gees ayaa ku filan in lagu caddeeyo in laba saddexagal ay isku mid yihiin (congruent).

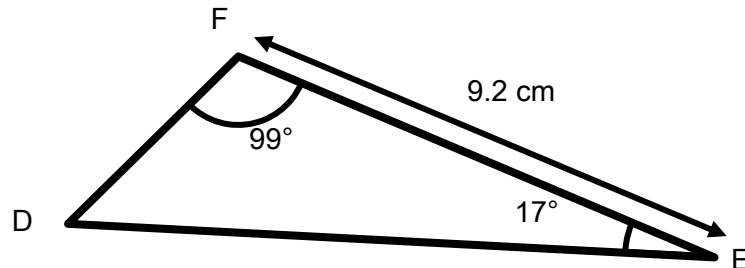
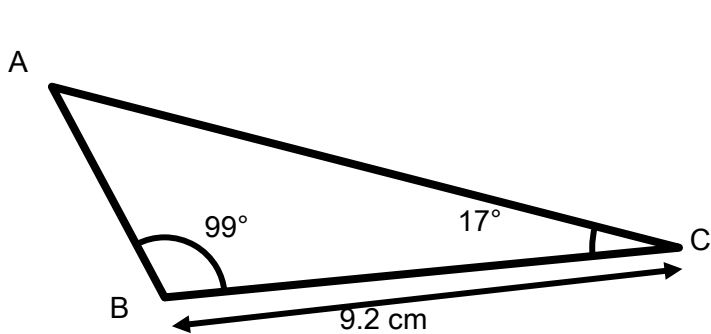


b

Ogaanshaha hal xagal mar walba kumau oggolaanayo inaad xisaabiso labada kale.

Haddii aan ognahay hal dherer oo gees ah iyo laba xagal oo gudaha ah, markaas waxaan caddeyn karnaa in laba saddexagal ay isku mid yihiin (congruent).

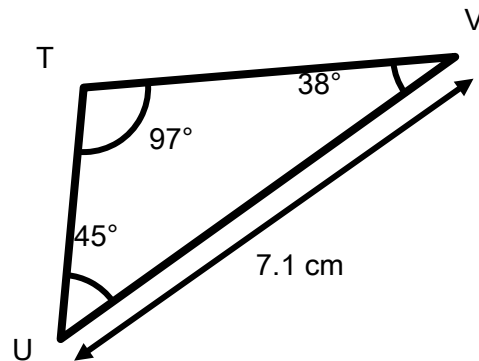
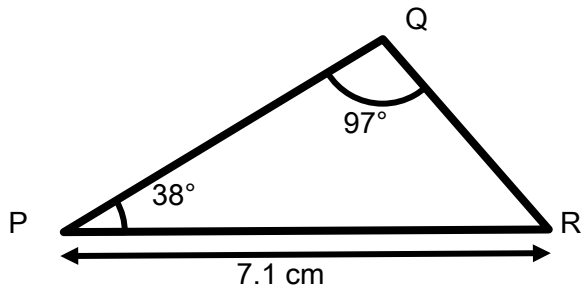
Caddee in saddexagalka ABC uu isku mid yahay (congruent) saddexagalka DEF iyadoo la adeegsanayo ASA/AAS.



$BC = EF = 9.2$ cm, $\angle ABC = \angle DFE = 99^\circ$ iyo $\angle ACB = \angle DEF = 17^\circ$, marka saddex-xagal (triangle) ABC wuxuu la siman yahay (congruent) saddex-xagal (triangle) DEF iyadoo la adeegsanayo ASA.

Haddii aan ognahay hal dhinac (side length) iyo laba xagal gudaha (interior angles), markaas waxaan caddayn karnaa in labada saddex-xagal (triangles) ay isku siman yihiin (congruent).

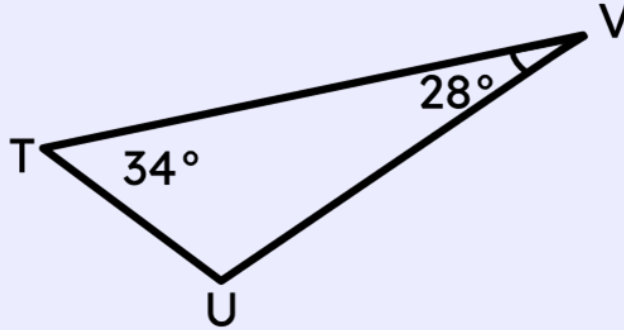
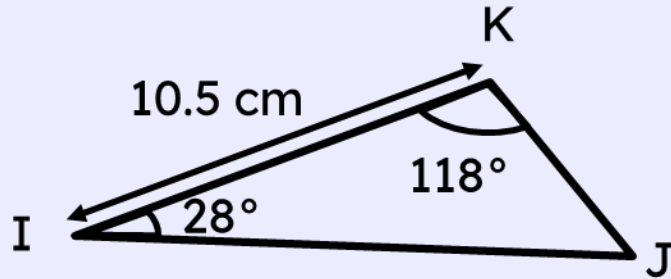
Cadday saddex-xagal (triangle) QPR inuu la siman yahay (congruent) saddex-xagal (triangle) TUV iyadoo la adeegsanayo ASA/AAS.



$$\angle TVU = 180 - (97 + 45) = 180 - 142 = 38^\circ,$$

$PR = UV = 7.1$ cm, $\angle PQR = \angle UTV = 97^\circ$ iyo $\angle QPR = \angle TVU = 38^\circ$, saddex-xagal (triangle) QPR wuxuu la siman yahay (congruent) saddex-xagal (triangle) TUV iyadoo la adeegsanayo AAS.

Saddex-xagal (triangle) IJK iyo saddex-xagal (triangle) TUV waxay isku siman yihiin (congruent) iyadoo la adeegsanayo AAS.

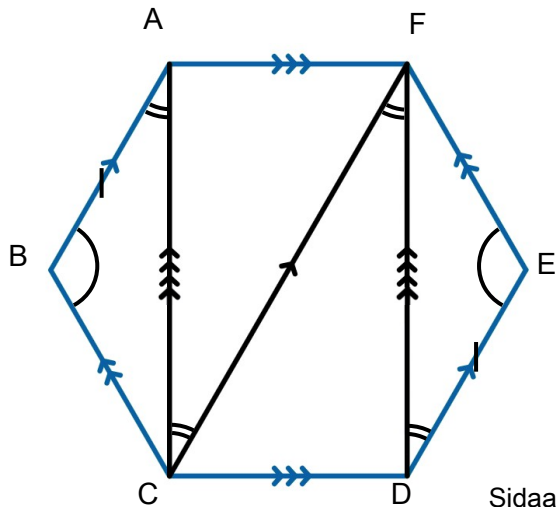


Cidhifkee (edge) ayaa u dhigma (corresponds) IK?

UV

Qaabab badan (shapes) waxay leeyihiin sifooyin (properties) aan u isticmaali karno si aan u caddayno saddex-xagallo (triangles) isku siman (congruent) oo ku dhex jira.

Halkan waxaa ah lix-geesle joogto ah (regular hexagon) ABCDEF, oo leh saddex geesood (diagonals) oo la sawiray. Saddex-xagallo (triangles) tee ayaa isku siman (congruent) midba midka kale?



$\angle ABC = \angle DEF (= 120^\circ)$ sababtoo ah waa xaglo gudaha (interior angles) oo lix-geesle joogto ah (regular hexagon).

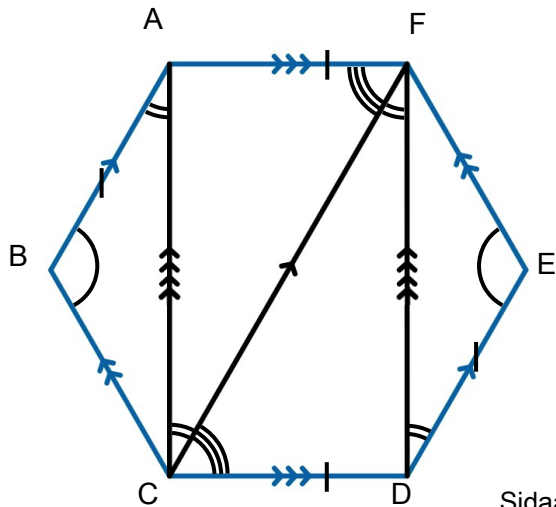
$AB = DE$ sababtoo ah waa cidhifyo (edges) lix-geesle joogto ah (regular hexagon).

$\angle BAC = \angle ACF = \angle CFD = \angle FDE$ sababtoo ah waa xaglo beddel ah oo gudaha (interior alternate angles) oo ku yaal khadadka barbar socda (parallel lines).

Sidaa darteed, $\triangle ABC$ iyo $\triangle DEF$ waxay isku siman yihiin (congruent) iyadoo la adeegsanayo ASA.

Qaabab badan waxay leeyihiin sifooyin aan u isticmaali karno si aan u caddeyno saddexagallo isku mid ah (congruent triangles) oo ku jira iyaga.

Waa kan laba-geesoodka (hexagon) caadiga ah ABCDEF, oo leh saddex geesood (diagonals) oo la sawiray. Saddexagallooyinka kee baa isku mid ah (congruent)?



$\angle AFC = \angle FCD$ maadaama ay yihiin xaglaha beddelka ah ee gudaha ee xariijimaha isbarbar socda.

$\angle ACF = \angle CFD$ maadaama ay yihiin xaglaha beddelka ah ee gudaha ee xariijimaha isbarbar socda.

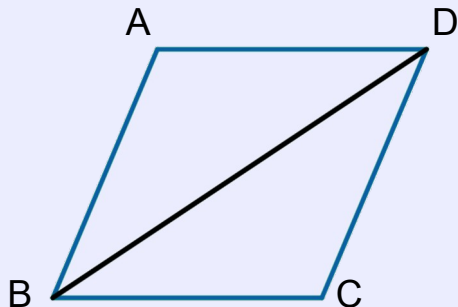
$AF = CD$ maadaama ay yihiin geesaha laba-geesoodka caadiga ah.

Sidaa darteed, $\triangle AFC$ iyo $\triangle FCD$ waxay isku siman yihiin (congruent) iyadoo la adeegsanayo AAS.

Caddaynta isku midnimada (congruence) iyadoo la adeegsanayo ASA/AAS



Dhammeystir caddaynta in saddexagalka ABD iyo saddexagalka BCD ay yihiin kuwa isku mid ah (congruent) iyadoo la adeegsanayo AAS/ASA. Haddii ABCD ay tahay rhombus.



$\angle DAB = \angle BCD$ maadaama ay yihiin _____

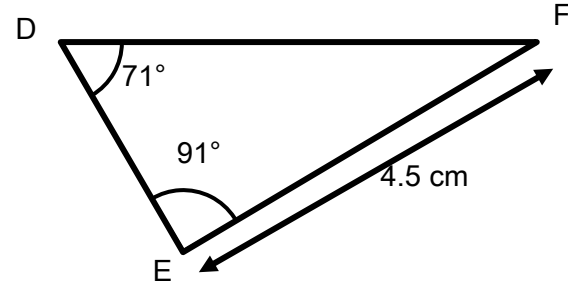
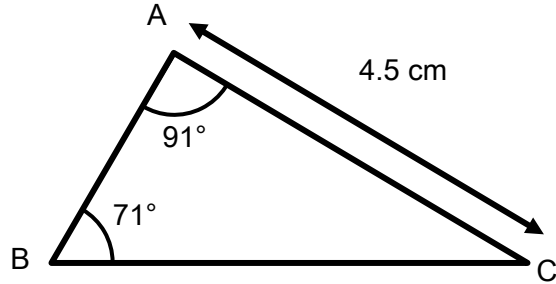
$\angle ABD = \angle BDC$ maadaama ay yihiin xaglaha beddelka ah ee gudaha ee xariijimaha isbarbar socda.

$AB = DC$ maadaama ay yihiin geesaha rhombus.

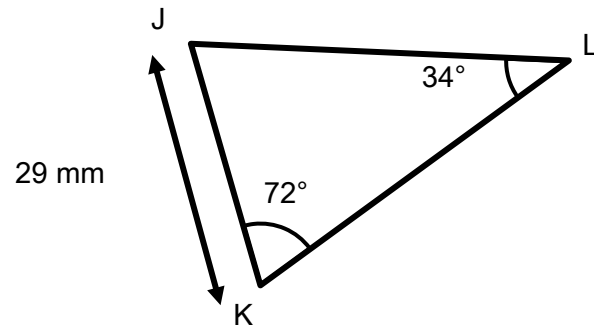
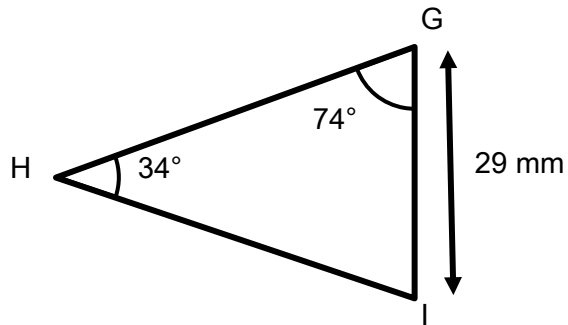
Sidaas darteed, ABD iyo BCD waa kuwo isku mid ah (congruent) iyadoo la adeegsanayo ASA.

1) Caddee in labada saddexagal ee kasta ay yihiin kuwa isku mid ah (congruent) iyadoo la adeegsanayo ASA/AAS.

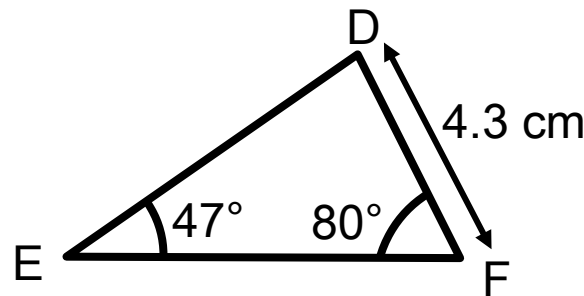
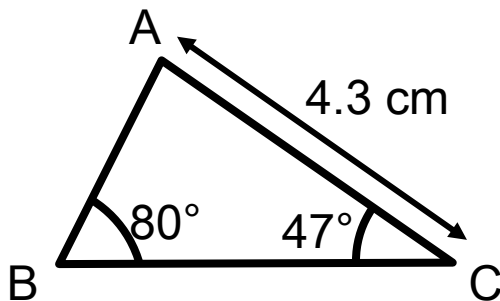
a)



b)

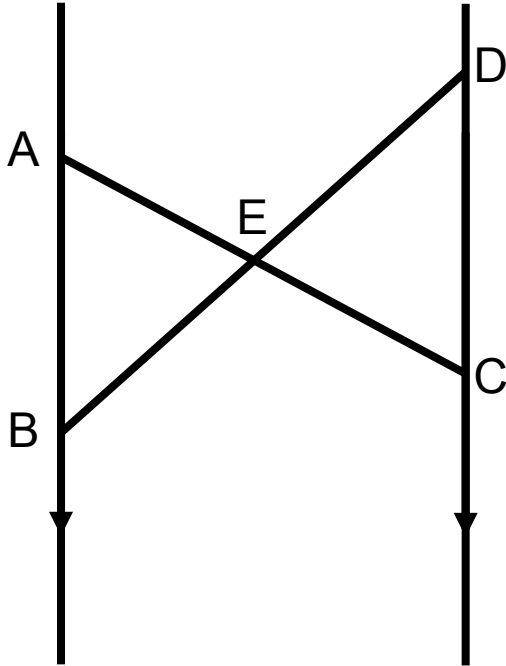


2) Maxay labadan saddexagal aan ugu ekaan (congruent) ASA?



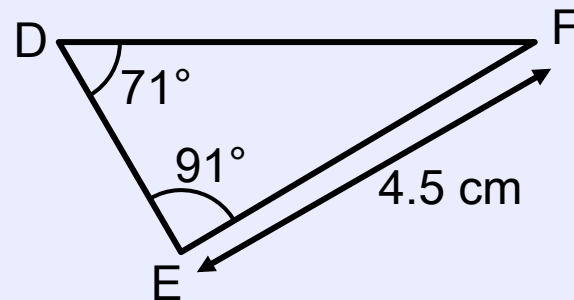
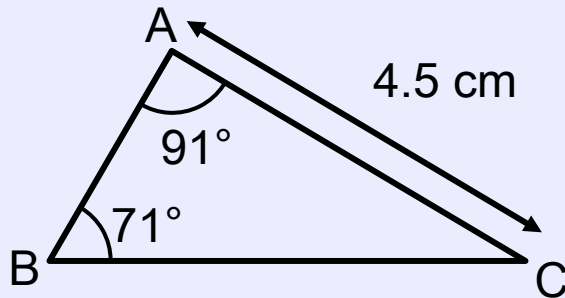
3) Haddii ABCD ay tahay parallelogram, caddee in saddexagalka ABC uu yahay mid isku mid ah (congruent) saddexagalka ACD iyadoo la adeegsanayo ASA ama AAS.

4) Dhibic E waa bartamaha AC iyo BD. Caddee in saddexagalka AEB uu la ekaado (congruent) saddexagalka ECD iyadoo la adeegsanayo ASA/AAS.



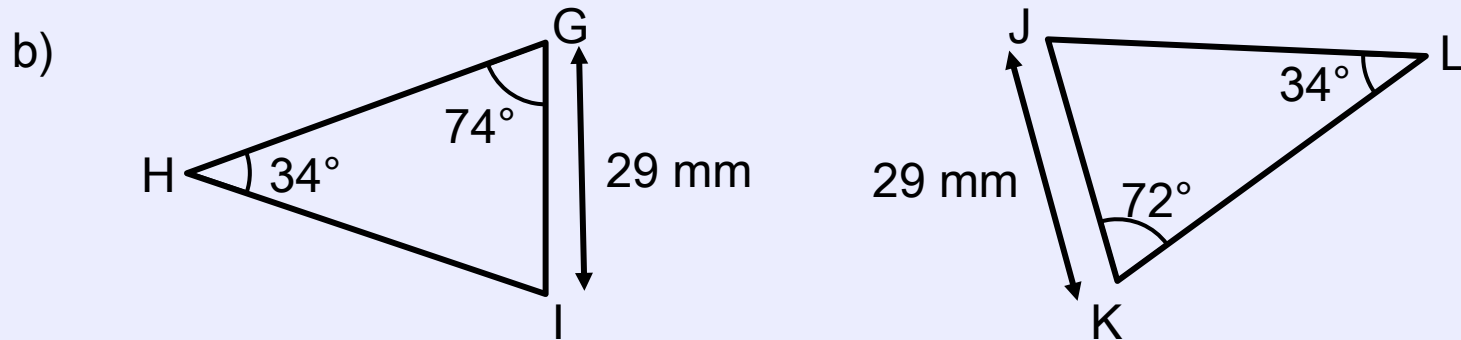
1) Caddee labada saddexagal ee la ekaado (congruent) iyadoo la adeegsanayo ASA/AAS.

a)



AC iyo EF waa geesaha u dhigma oo isku eg, $\angle BAC = \angle DEF$ iyo $\angle ABC = \angle EDF$.
Hence, congruent by AAS.

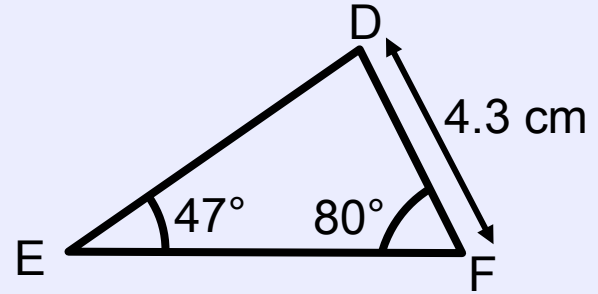
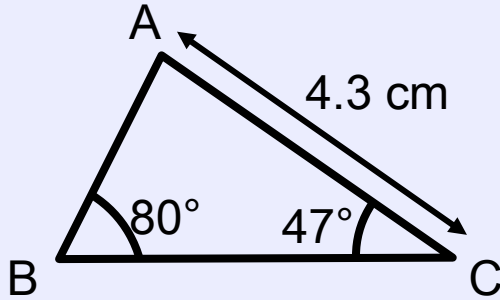
1) Caddee labada saddexagal ee la ekaado (congruent) iyadoo la adeegsanayo ASA/AAS.



$\angle GIH = 180 - (34 + 74) = 72^\circ$ and $\angle KJL = 180 - (34 + 72) = 74^\circ$
GI iyo JK waa geesaha u dhigma oo isku eg, $\angle HGI = \angle KJL$ iyo $\angle GIH = \angle JKL$.

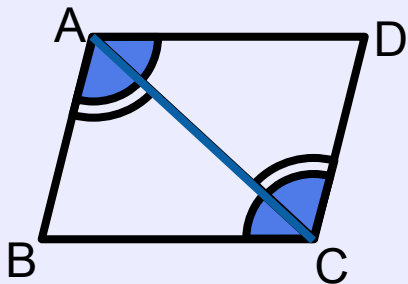
Hence, congruent by ASA.

2) Maxay labadan saddexagal aan ugu ekaan (congruent) ASA?



In kastoo, saddexda xagal gudaha ee labada saddexagal ay isku mid yihiin. Labada cidhif ee 4.3 cm ma aha cidhifyada u dhigma ee saddexagallada.

3) Marka la eego saddexagal-barbarro ABCD, caddee in saddexagalka ABC uu la mid yahay saddexagalka ACD iyadoo la adeegsanayo ASA/AAS.

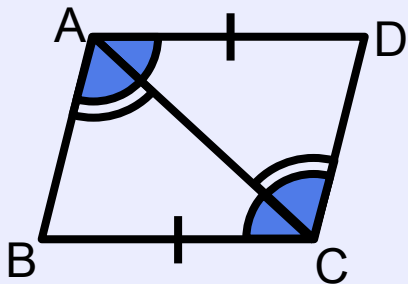


$\angle DAC = \angle ACB$ maadaama ay yihiin xaglo gudaha oo isku beddelaya oo isku mid ah.

$\angle DCA = \angle BAC$ maadaama ay yihiin xaglo gudaha oo isku beddelaya oo isku mid ah.

Sidaas darteed, saddexagalka ABC wuxuu la mid yahay saddexagalka ACD iyadoo la adeegsanayo ASA.

3) Marka la eego saddexagal-barbarro ABCD, caddee in saddexagalka ABC uu la mid yahay saddexagalka ACD iyadoo la adeegsanayo ASA/AAS.



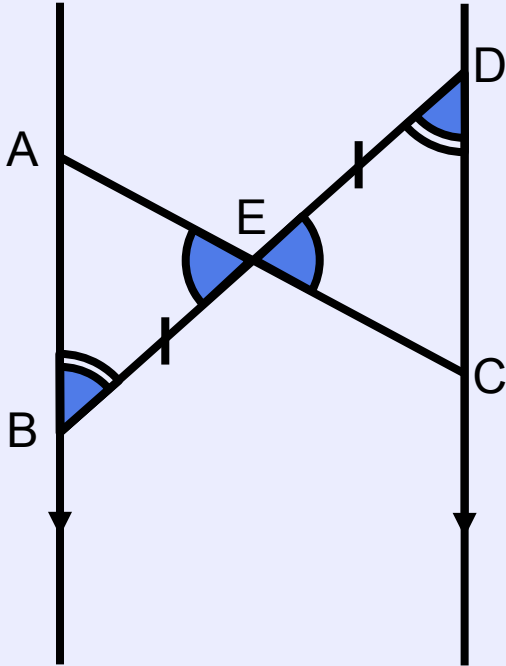
$AD = BC$ maadaama ay yihiin dhinacyo iska soo horjeeda ee saddexagal-barbarro.

$\angle DAC = \angle ACB$ maadaama ay yihiin xaglo gudaha oo isku beddelaya oo isku mid ah.

$\angle DCA = \angle BAC$ maadaama ay yihiin xaglo gudaha oo isku beddelaya oo isku mid ah.

Sidaas darteed, saddexagalka ABC wuxuu la mid yahay saddexagalka ACD iyadoo la adeegsanayo AAS.

4) Dhibicda E waa bartamaha AC iyo BD. Caddee in saddexagalka AEB uu la mid yahay saddexagalka ECD iyadoo la adeegsanayo ASA/AAS.



$DE = EB$, maadaama E ay tahay bartamaha BD.

$\angle AEB = \angle DEC$ maadaama ay yihiin xaglo toos u kala horjeeda.

$\angle ABE = \angle EDC$, maadaama ay yihiin xaglo gudaha oo isku beddelaya oo isku mid ah.

Sidaas darteed, saddexagalka AEB wuxuu la mid yahay saddexagalka ECD iyadoo la adeegsanayo ASA.

Laba saddexagal ayaa la caddayn karaa inay isku mid yihiin haddii laba xagal oo u dhigma iyo dhinac u dhigma la ogaado inay isku mid yihiin.

Haddii dhinaca u dhigma uu dhexeeyo labada xagal ee la yaqaan, waxaan dhahnaa waxay isku mid yihiin ASA (xagal-dhinac-xagal).

Haddii dhinaca u dhigma uusan u dhexayn labada xagal ee la yaqaan, waxaynu niraahnaa waa isku mid (congruent) AAS (xagal-xagal-dhinac).