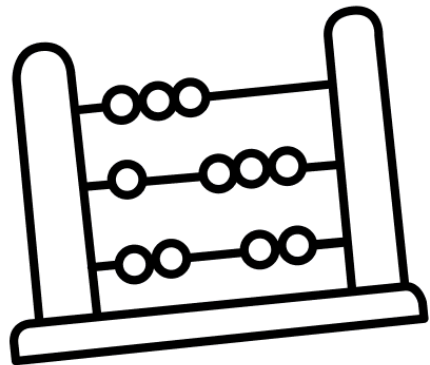


Saddexagallo isku mid ah (RHS)



Maths

Cutub: Sifooyin joomatari: isku ekaansho iyo aragtida
Pythagoras

Natiijo

Waxaan qiimeyn karaa oo isticmaali karaa shuruudaha ay saddexagalladu isku mid ku yihiin (RHS).

Saddexagal qumman wuxuu leeyahay hal xagal gudaha ah oo 90° ah.

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

Hypotenuse waa dhinaca saddexagalka qumman ee ka soo horjeeda xagasha qumman.

Saddexagallo isku mid ah (RHS)



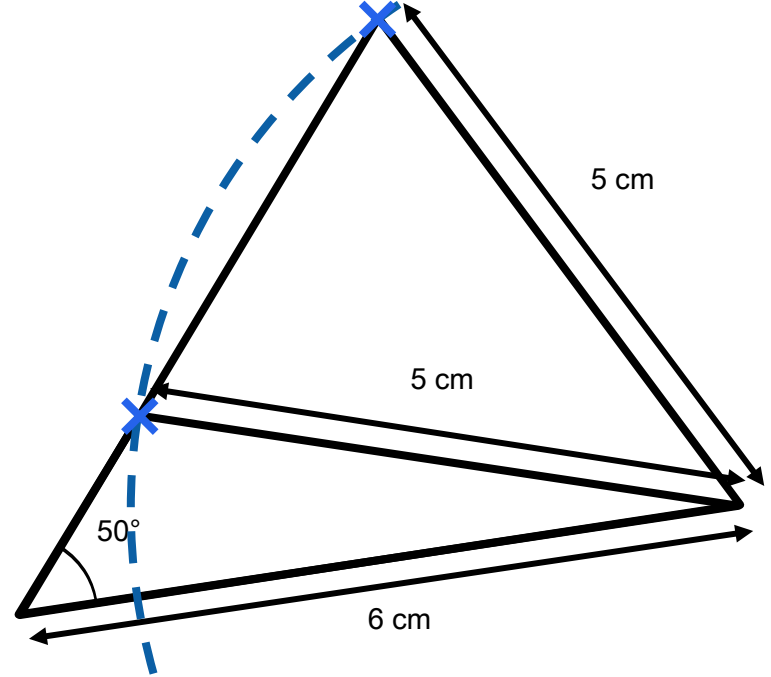
Helista xagasha qumman



Caddaynta isku midnimada RHS

Marka laba dhinac iyo xagal (aan dhexdooda ahayn) la ogaado, tani waxay keeni kartaa laba saddexagal oo kala duwan. Sababtan awgeed, kuma filna in lagu caddeeyo isku midnimada laba saddexagal.

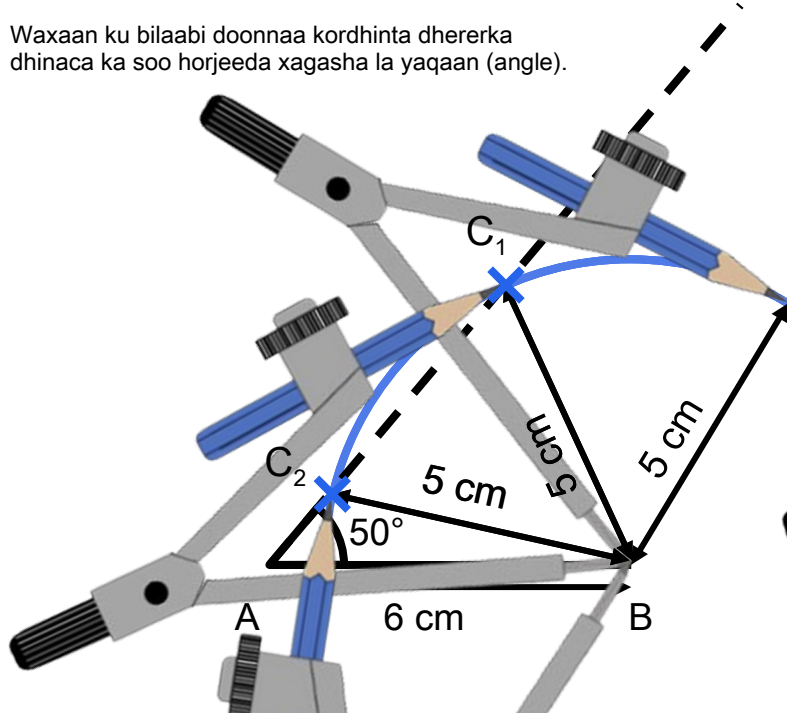
Ma macluumaadkani had iyo jeer wuxuu keenayaa laba saddexagal oo kala duwan?



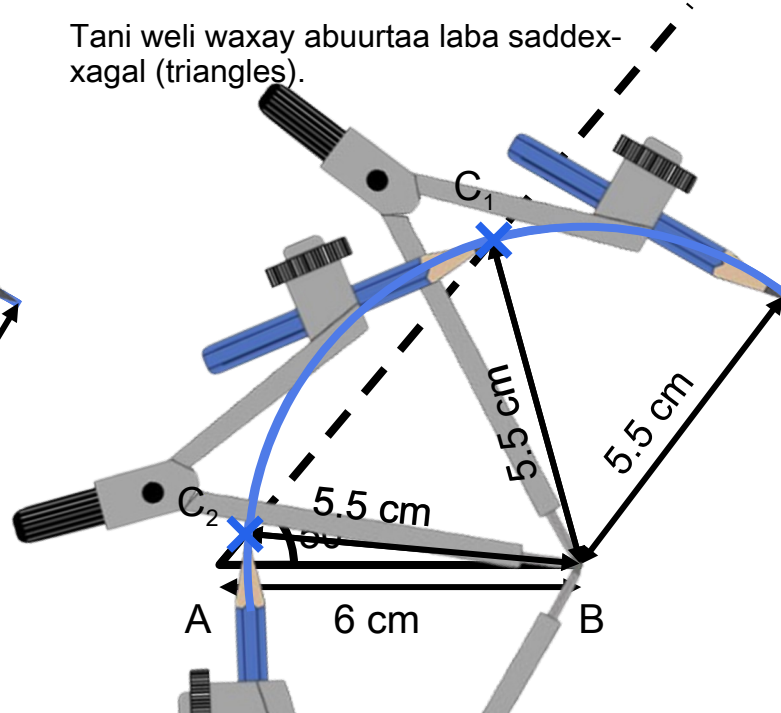
Waxaan baari doonaa su'aasha Axmed, adigoo xagasha iyo hal dhinac isku mid ah ku hayna, oo dhinaca labaad beddelaya.

Vertex C wuxuu jiifsan doonaa meel ku taal khadka rayga.

Waxaan ku bilaabi doonaa kordhinta dhererka dhinaca ka soo horjeeda xagasha la yaqaan (angle).

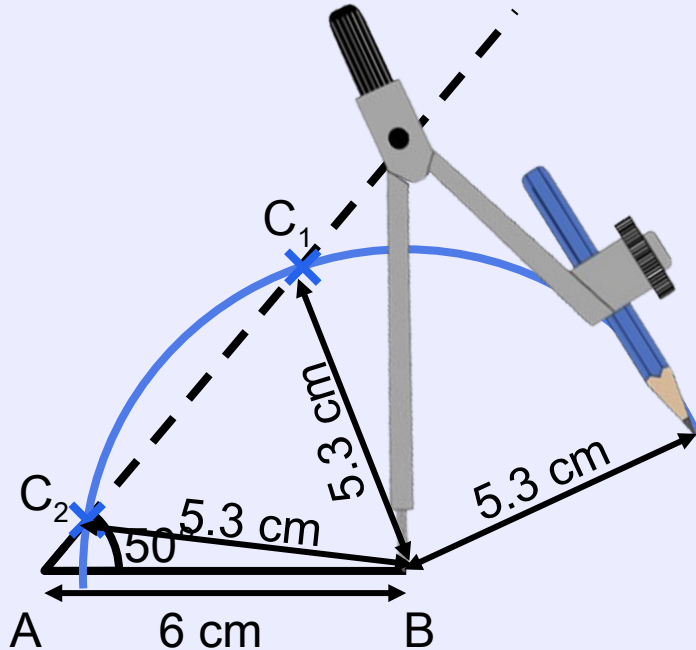


Tani weli waxay abuurtaa laba saddex-xagal (triangles).



Helista xagasha saxda ah (right angle)

Haddii qaanso (arc) dhererkeedu yahay 5.3 cm laga soo qoro B, imisa jeer ayay ku goyn doontaa khadka shucaaca (ray line)?

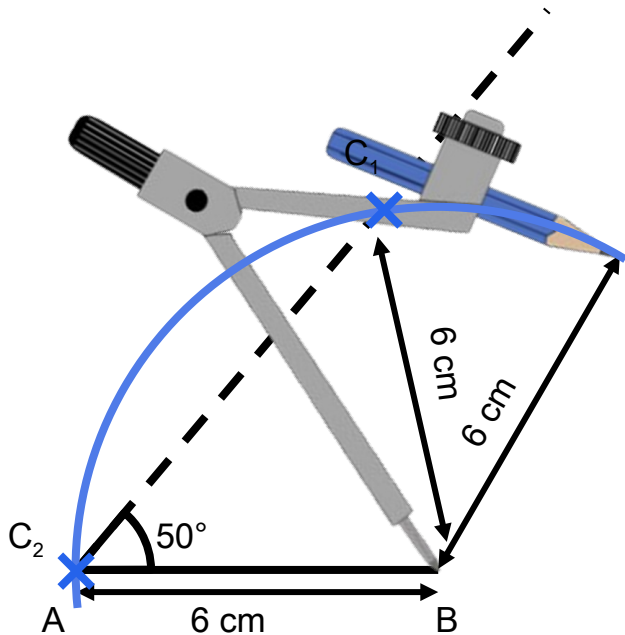


2 jeer

5.3 cm waa ka yar yahay 5.5 cm kana weyn yahay 5 cm, kuwaas oo labadooduba laba jeer isgooyeen.

Ilaa hadda, laba saddex-xagal (triangles) ayaa la abuuray.

Haddii aan kordhinno dhererka (radius) ilaa 6 cm, ma waxay beddelaysaa wax?



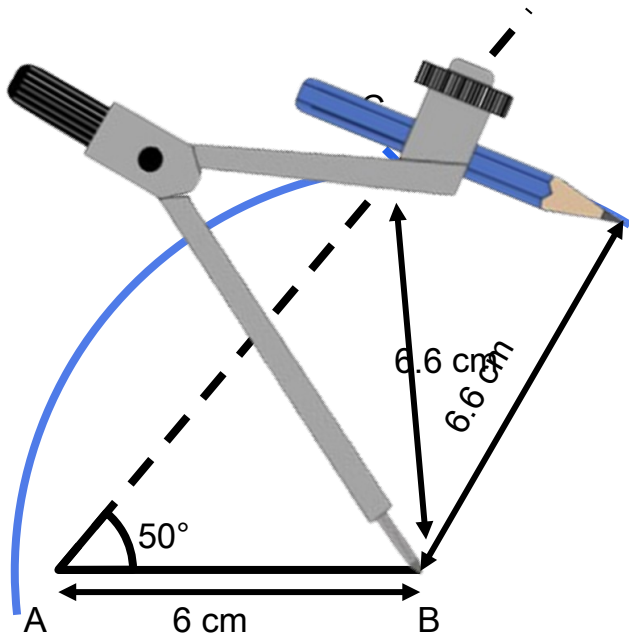
Waxay ka dhigan tahay inay noqon doonto saddexagal isosceles.

Qodobka labaad waa vertex A, marka tani ma abuuro saddexagal.



Ilaa hadda, laba saddexagal ayaa la abuuray.

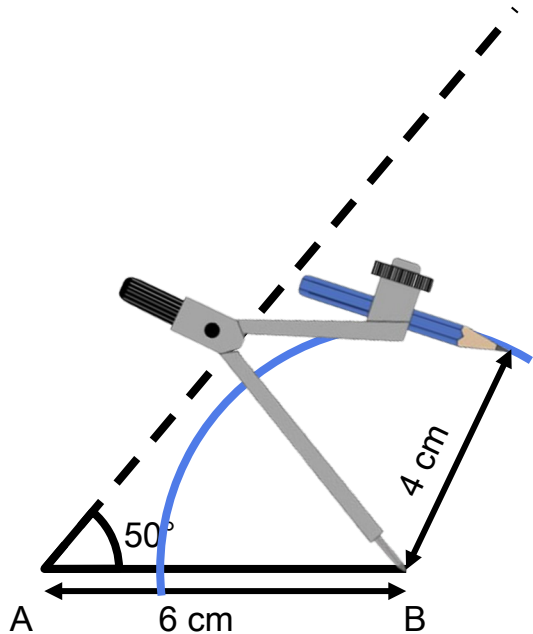
Haddii aan kordhinno radius-ka in ka badan 6 cm, maxaa dhacaya hadda?



Marka kaliya hal saddexagal ayaa la abuuraa.

Maxaa dhacaya haddii cidhifkeena ka soo horjeeda xagasha 50° uu ka yar yahay 5 cm?

Waxaan ku bilaabi doonnaa 4 cm.



Tani waxay noqon doontaa kiiska dhammaan dhererka ka yar 4 cm.

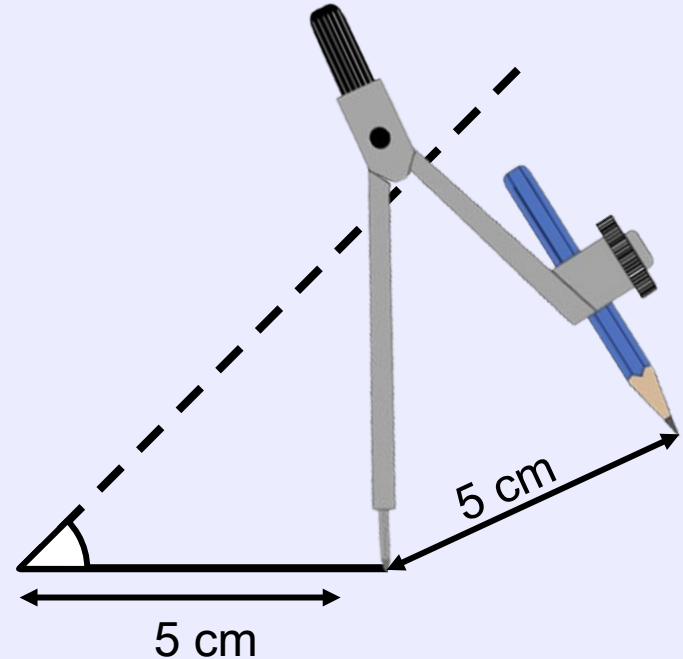


Ma goynayo gabi ahaanba.

Helista xagasha qumman (right angle)

Dhisiddan, imisa saddex-xagal (triangle) ayaa jiri doona?

- a** 0 saddex-xagal (triangle)
- b** 1 saddex-xagal (triangle) ✓
- c** 2 saddex-xagal (triangle)



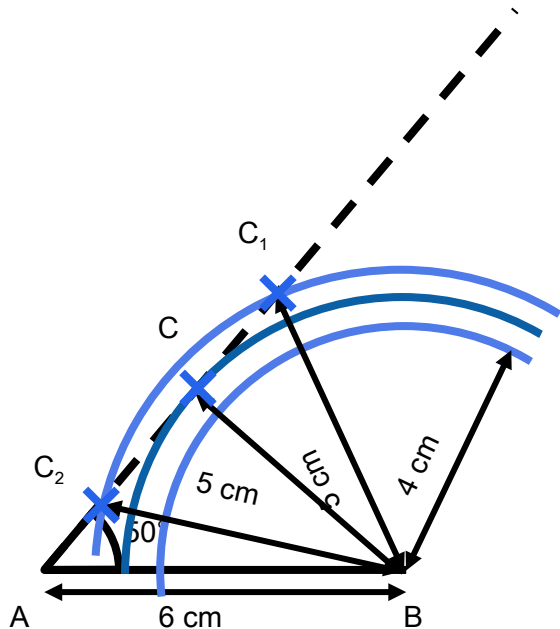
Helista xagasha qumman (right angle)



Sharaxaad

Dhererka radius-kaas waa masaafada ugu yar (minimum distance).

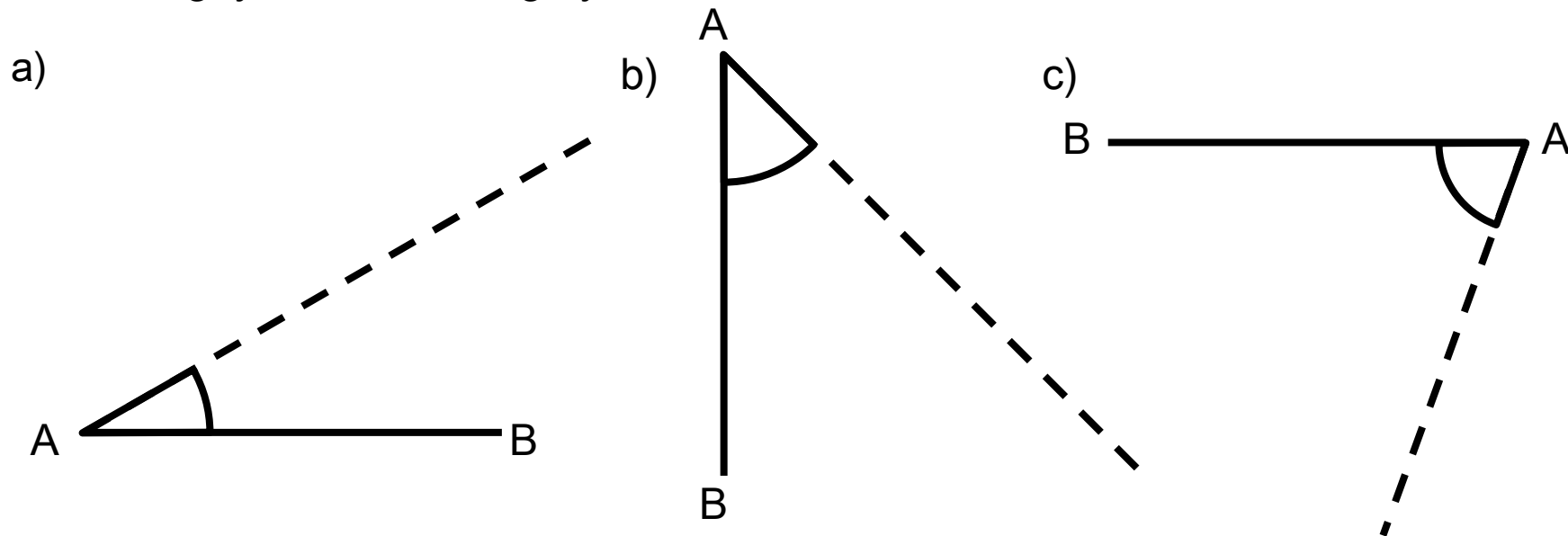
Wax kasta oo ka yar, kuma ekaan doono xariiqda shucaaca (ray line).



Waan ognahay in 5 cm ay laba jeer isgoysay, 4 cm-na aysan isgoysayn. Markaa waa inay jirtaa dherer uu kaliya taabto xariiqda shucaaca (ray line) hal dhibic.

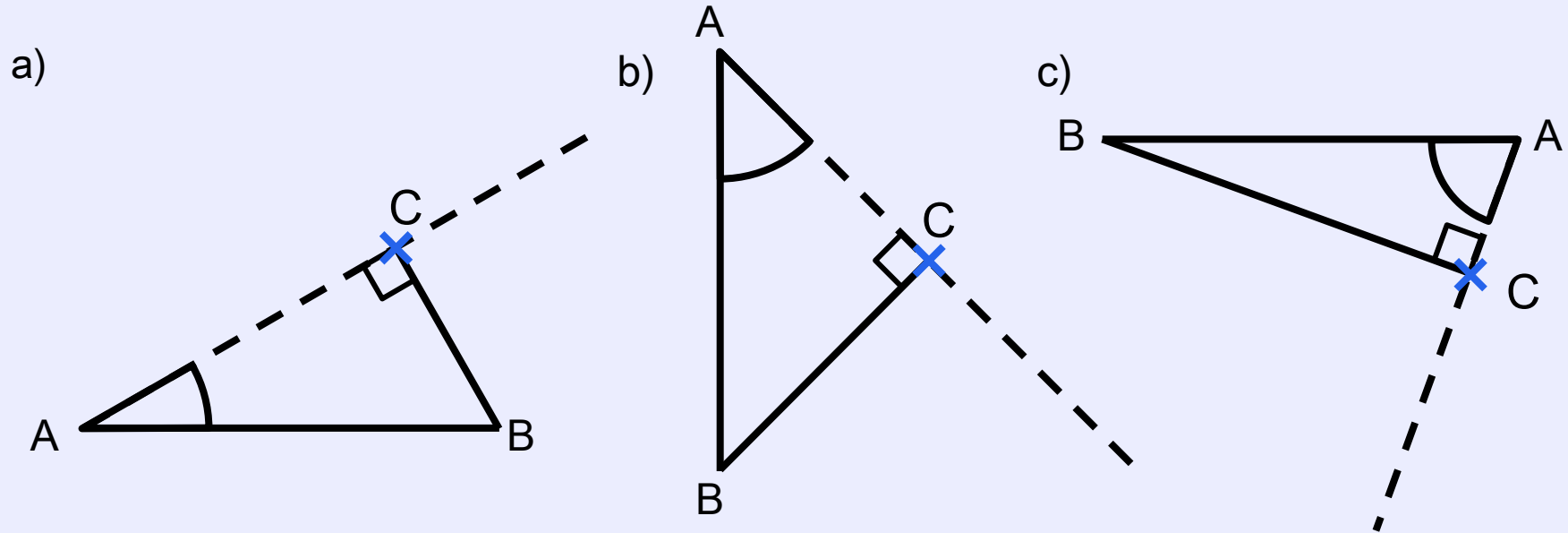


1) Isticmaal laba xarig (compasses), hel oo calaamadee meesha vertex C, taas oo ka dhigeysa dhererka ugu yar ee BC.



2) Isticmaal protractor (protractor) si aad u cabbirto xagasha BCA jaantus kasta oo ka mid ah su'aasha 1. Maxaad dareemeysaa?

1) Isticmaal laba xarig (compasses), hel oo calaamadee meesha vertex C, taas oo ka dhigeysa dhererka ugu yar ee BC.



2) Isticmaal protractor (protractor) si aad u cabbirto xagasha BCA jaantus kasta oo ka mid ah su'aasha 1. Maxaad dareemeysaa?

Qaabka casharka

Saddexagallo isku-xiran (Congruent) (RHS)

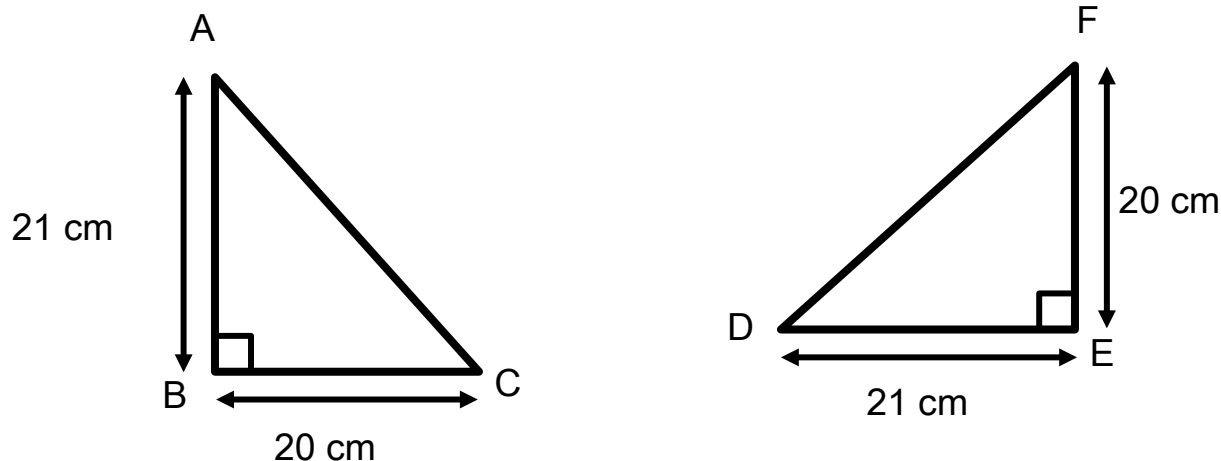


Helista xagasha saxda ah



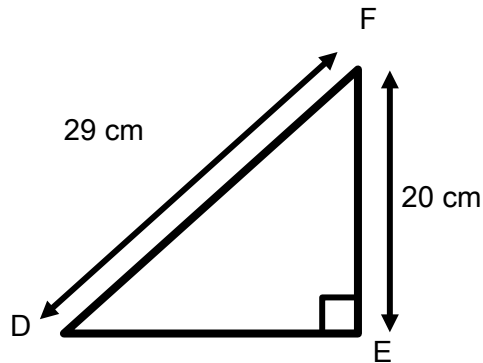
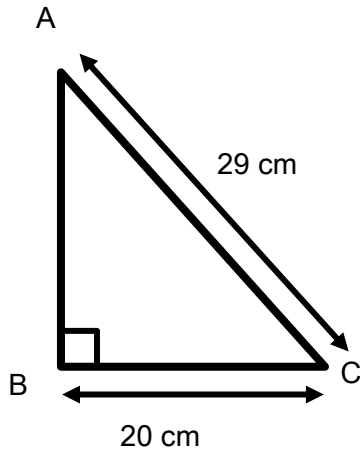
Caddaynta isku-xirnaanta (Congruence) iyadoo la adeegsanayo RHS

Waa kuwan laba saddexagal oo xagasha saxda ah leh.



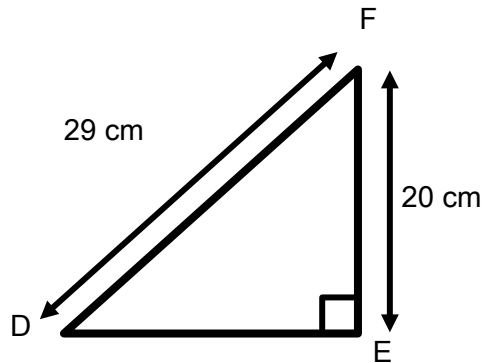
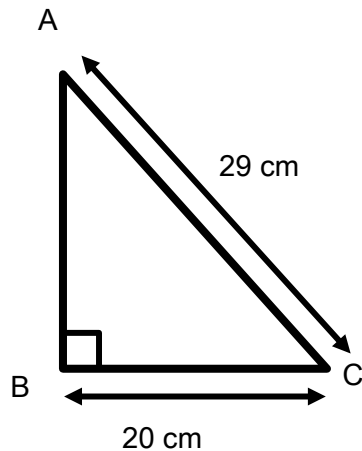
Macluumaadka la bixiyay, waxaan muujin karnaa in saddexagalka ABC iyo saddexagalka DEF ay isku-xiran yihiin. Maaddaama $AB = DE$, $\angle ABC = \angle DEF$ iyo $BC = EF$, waxay isku-xiran yihiin iyadoo la adeegsanayo SAS (side-angle-side).

Haddii la siin lahaa macluumaadkan beddelkiisa, ma wali hubsan karnaa inay isku-xiran yihiin?



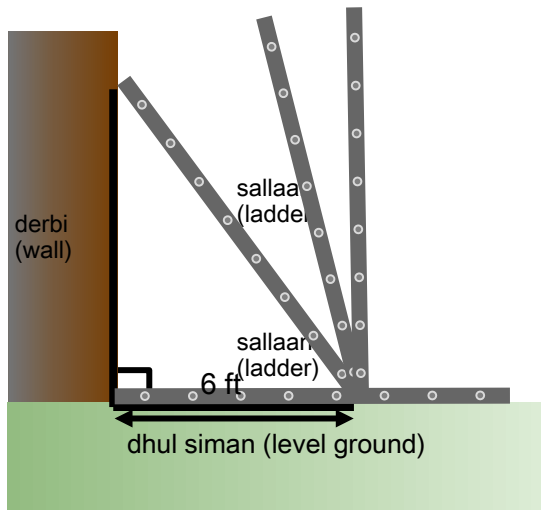
Caadi ahaan, in la helo laba dherer oo dhinac ah iyo xagal aan ku dhex jirin, kuma filna in lagu caddeeyo isku-xirnaanta (Congruence), sababtoo ah waxaa jiri kara laba saddexagal oo kala duwan.

Haddii la siin lahaa macluumaadkan beddelkiisa, ma wali hubsan karnaa inay isku-xiran yihiin?



Si kastaba ha ahaatee, hal saddex-xagal oo keliya ayaa suurtoagal marka saddex-xagal qumman (right-angled triangle) la sameeyo.

Ka fikir inaad sallaanka (ladder) dhigto derbi ku taagan dhul siman.



Sallaanku waa dherer go'an.

Derbiga iyo dhulku waa is-qumman yihiin (perpendicular).

Haddii cagta sallaanka (hoose) la dhigo 6 feet u jirta derbiga.

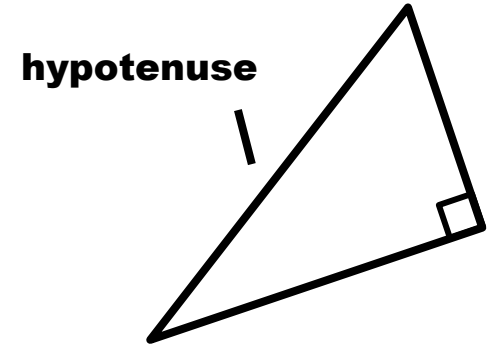
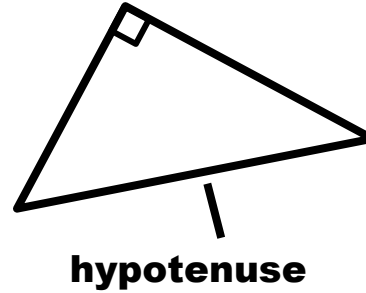
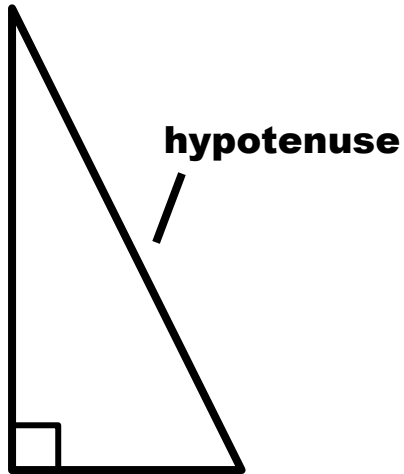
Immisa meelood oo kala duwan ayay sallaanka sare taaban doonaa derbiga?

Hal meel oo keliya. Hal saddex-xagal qumman oo keliya ayaa laga samayn karaa labadaas dhinac oo leh dherer go'an.

Caddaynta isku-dhigma (congruence) iyadoo la adeegsanayo RHS

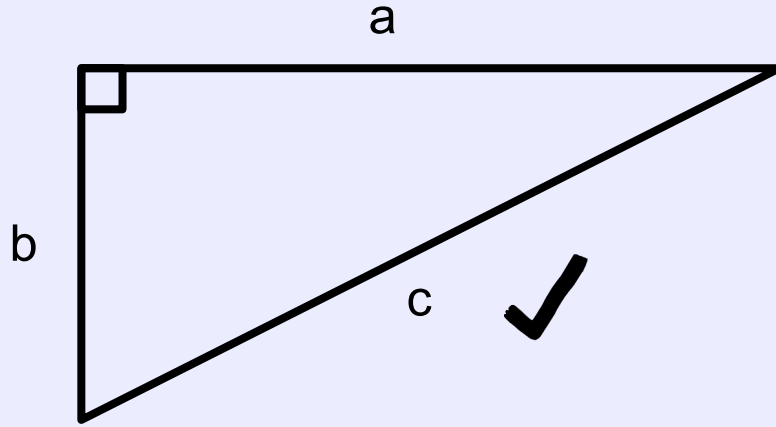
Saddex-xagal qumman dhexdiisa, 90° waa xagasha ugu weyn gudaha. Dhinaca ka soo horjeeda xagasha qumman ayaa sidoo kale ah cidhifka ugu dheer.

Waxaa loo yaqaan hypotenuse.



Cadeyn ku habboonaanta (congruence) iyadoo la adeegsanayo RHS

Cidhifkee waa hypotenuse saddex-xagalkan qumman?



Run mise been?

Cidhifka ugu dheer ee saddexagalka waxaa loo yaqaan hypotenuse



Run



Been



Sabab u sheeg jawaabtaada

a

Hypotenuse waa cidhifka ugu dheer ee saddexagalka xagal-qumman



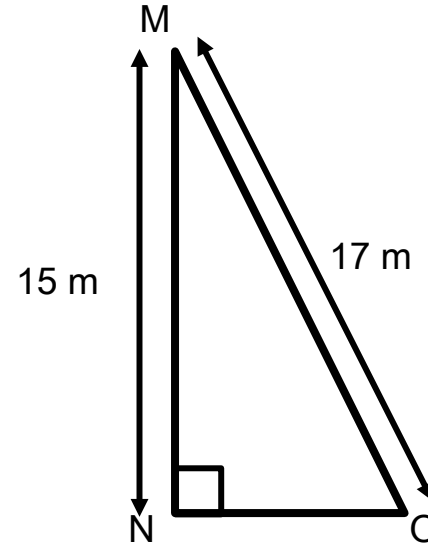
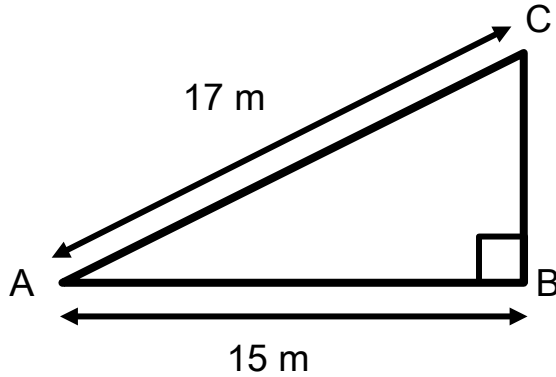
b

Cidhifka ugu dheer wuxuu had iyo jeer ka soo horjeedaa xagasha ugu weyn

Cadeyn ku habboonaanta (congruence) iyadoo la adeegsanayo RHS

Kiis gaar ah oo ku saabsan caddaynta ku habboonaanta (congruence) iyadoo la ogyahay laba cidhif iyo xagal ayaa ku habboon saddexagalka xagal-qumman.

Waxaan u naqaan RHS (xagal-qumman-hypotenuse-cidhif).



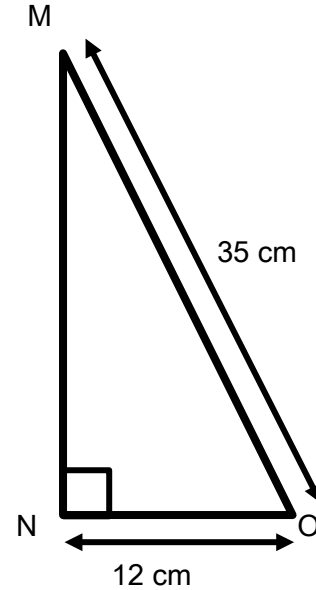
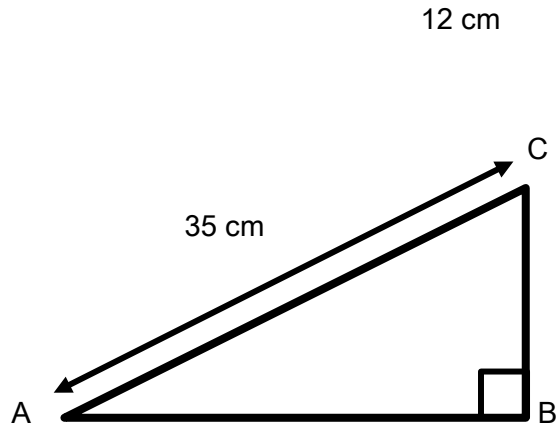
Cadeyn ku habboonaanta (congruence) iyadoo la adeegsanayo RHS



Sharaxaad

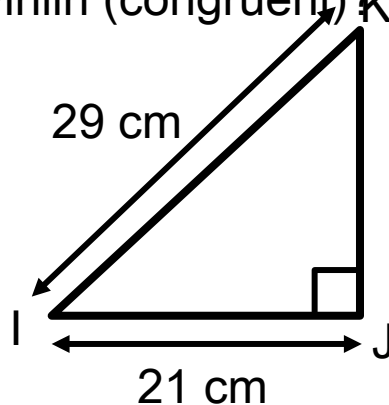
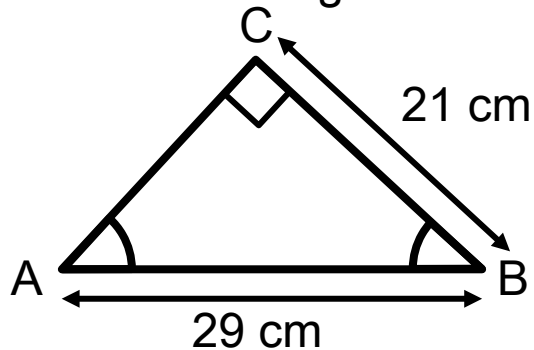
Waxaan u naqaan RHS (xagal-qumman-hypotenuse-cidhif).

Saddexagalka ABC iyo saddexagalka MNO waa ku habboon yihiin (congruent). Waa maxay dhererka BC?



Cadeyn ku habboonaanta (congruence) iyadoo la adeegsanayo RHS

Ma labadan saddexagal waa ku habboon yihiin (congruent)?



Marka hore, mid ka mid ah shuruudaha ku habboonaanta (congruence) ma aqbalo.

$\angle ACB$ can be calculated using the sum of interior angles in a triangle.

$$\angle ACB = 180 - (46 + 44) = 90^\circ$$

Sidaas darteed, saddexagalka ABC iyo saddexagalka IJK labaduba waa saddexagal qumman, sidaas darteed waxay isku mid yihiin (congruent) RHS.

Justifying congruence by RHS

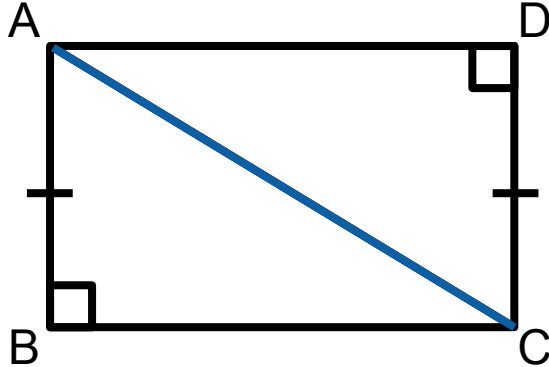
How do we know that triangle ABC and triangle DAC are congruent in this rectangle?

$\angle ABC = \angle ADC = 90^\circ$ maadaama ay tahay leydi.

AC waa gees la wadaago waana hypotenuse ee saddexagal kasta.

$AB = CD$ as they are opposite sides of a rectangle.

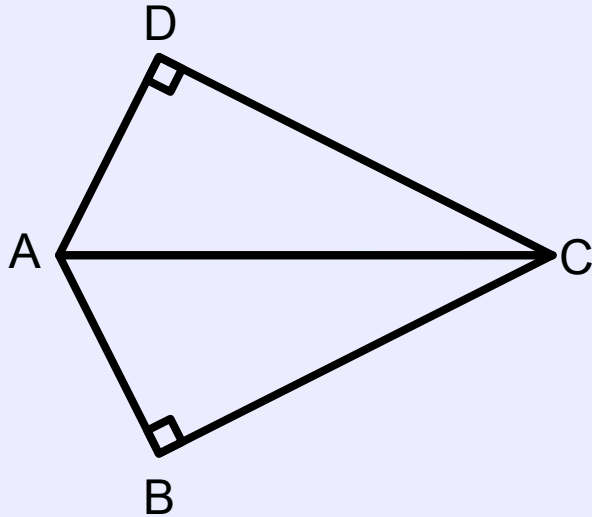
Sidaas darteed, saddexagalka ABC iyo DAC waxay isku mid yihiin (congruent) RHS.



Justifying congruence by RHS

ABCD waa dhaan (kite). Caddee in saddexagalka DAC iyo ABC ay isku mid yihiin (congruent) RHS.

Fill the blanks.



$\angle ADC = \angle ABC = \underline{\hspace{2cm}}^\circ$ as they are given in the diagram.

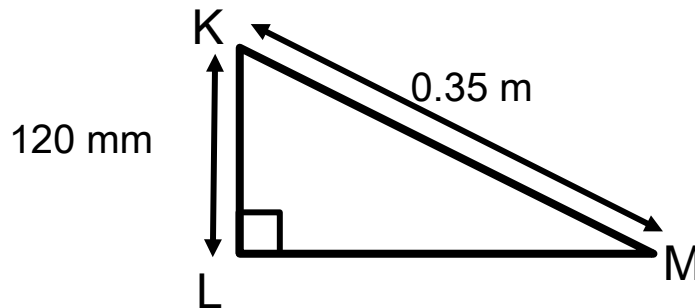
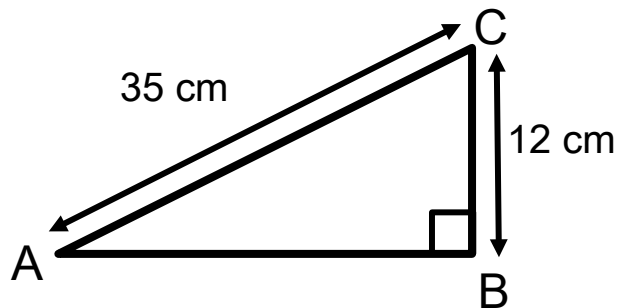
AC waa hypotenuse ee labada saddexagal.

DC = as they are adjacent sides on a kite.

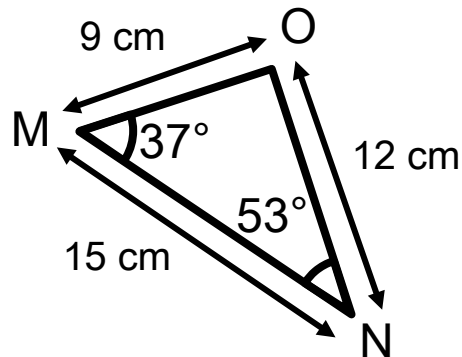
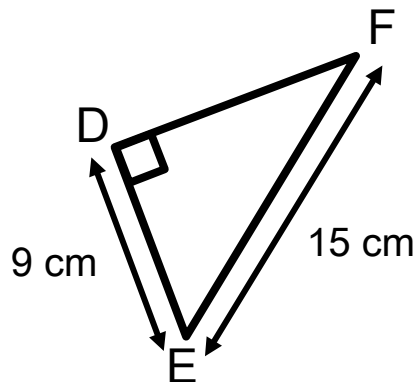
Sidaas darteed, saddexagalka DAC iyo ABC waxay isku mid yihiin (congruent) RHS.

1) Isticmaal RHS si aad u caddeyso in saddexagallada soo socda ay isku mid yihiin (congruent).

a)

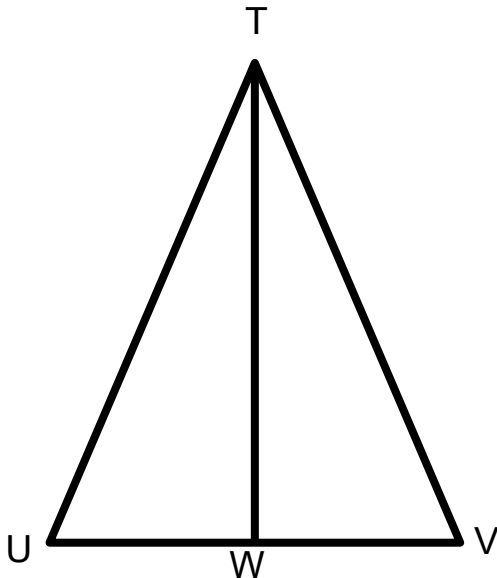


b)

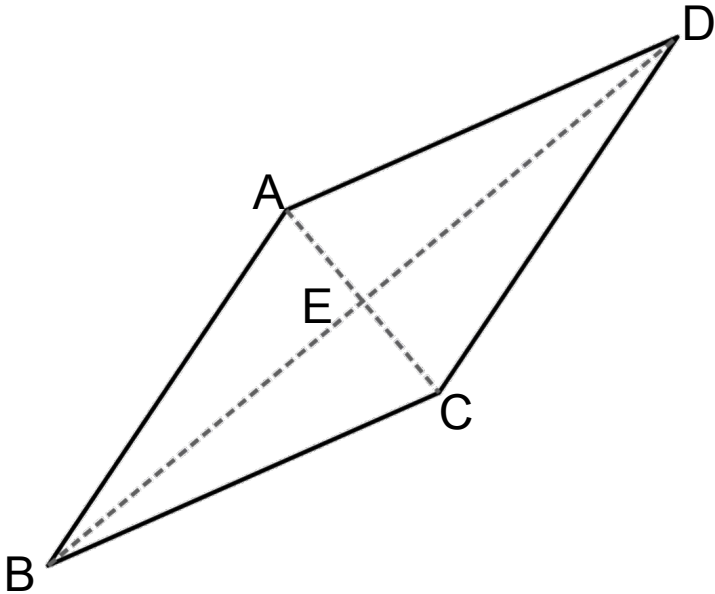


2) Saddexagalka TUV waa isosceles, halka $TU = TV$. TW waa qumman (perpendicular) UV.

Caddee saddexagalka TUW iyo TWV waa isku-dhafan (congruent) RHS.

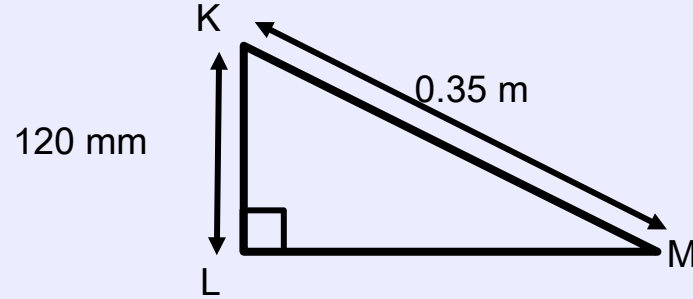
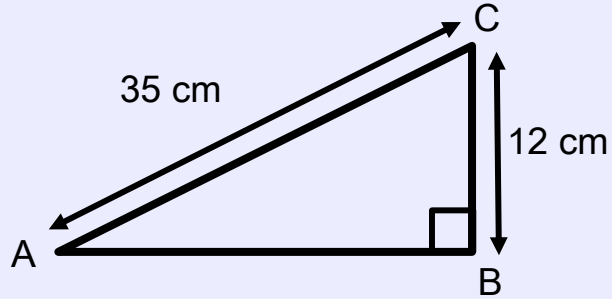


3) Isticmaal xaqiiqooyinka rhombi iyo diagonalkooda si aad u caddeyso saddexagalka AED waa isku-dhafan BEC RHS.



1) Isticmaal RHS si aad u caddeeyso lamaanaha saddexagalka ee soo socda waa isku-dhafan.

a)



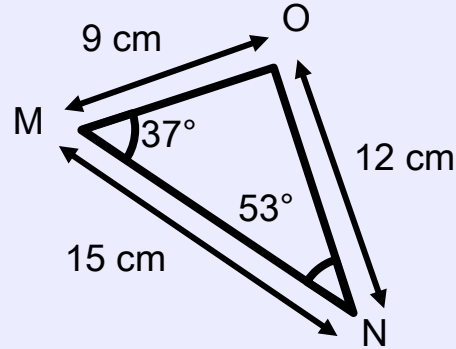
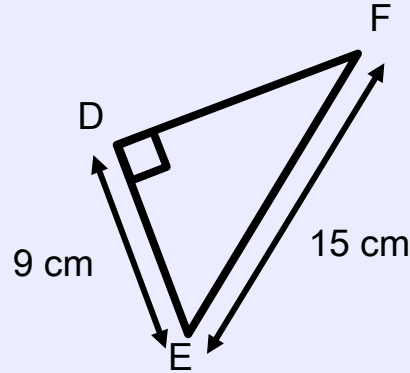
$\angle ABC = \angle KLM = 90^\circ$

AC iyo KM waa hypotenuse kasta oo saddexagal, waxayna isle'eg yihiin $35 \text{ cm} = 0.35 \text{ m}$

CB = KL, sida $12 \text{ cm} = 120 \text{ mm}$, sidaas darteed saddexagalka ABC iyo KLM waa isku-dhafan RHS.

1) Isticmaal RHS si aad u caddeeyso lamaanaha saddexagalka ee soo socda waa isku-dhafan.

b)



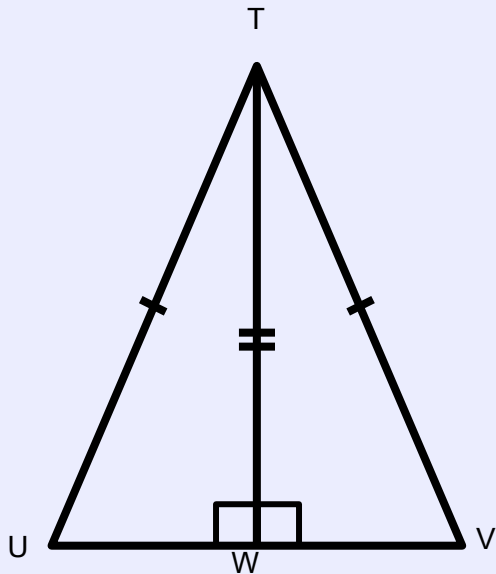
$$\angle MON = 180 - (37 + 53) = 90^\circ = \angle EDF$$

EF iyo MN waa hypotenuse (hypotenuse) saddexagalka kasta waxayna is'e'eg yihiin.

DE = MO sidaas darteed saddexagalka DEF iyo MNO waa isku qaab (congruent) iyadoo la adeegsanayo RHS.

2) Saddexagalka TUV waa isosceles (isosceles), halkaas oo $TU = TV$. TW waa toosan (perpendicular) UV.

Caddee in saddexagalka TUW iyo TWV ay yihiin kuwa isku qaab (congruent) iyadoo la adeegsanayo RHS.

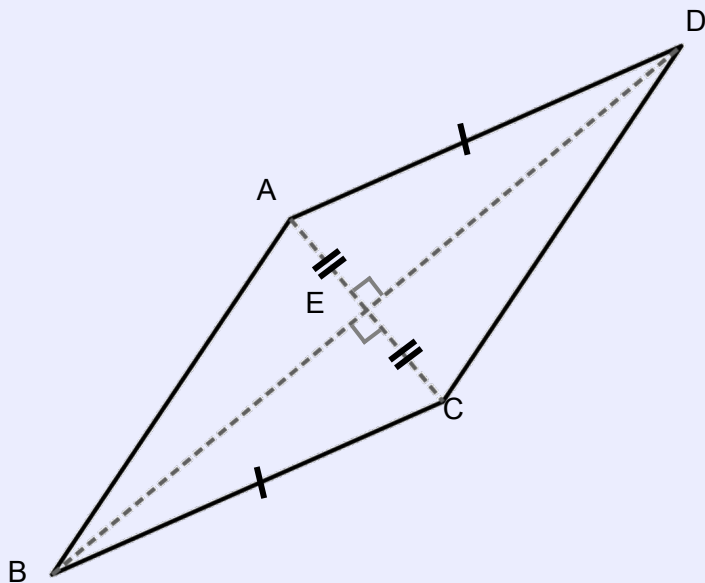


$\angle TWU = \angle TWV$ sababtoo ah TW waa toosan (perpendicular) UV.

$TU = TV$ sababtoo ah saddexagalka TUV waa isosceles (isosceles).

TW waa dhinac wadaag ah (common side) labada saddexagal TUW iyo TWV. Sidaas darteed, saddexagalka TUW iyo TWV waa isku qaab (congruent) iyadoo la adeegsanayo RHS.

3) Adigoo adeegsanaya xaqiiqooyinka la yaqaan ee rhombus (rhombus) iyo jaantusyada (diagonals), caddee in saddexagalka AED uu yahay mid isku qaab (congruent) BEC iyadoo la adeegsanayo RHS.



$\angle AED = \angle BEC = 90^\circ$ sababtoo ah jaantusyada (diagonals) rhombus (rhombus) waa kuwa isku toosan (perpendicular).

$AD = BC$ sababtoo ah waa geesaha (edges) rhombus (rhombus).

$AE = EC$ sababtoo ah jaantusyada (diagonals) rhombus (rhombus) waxay is qaybiyaan (bisect) midba midka kale. Sidaas darteed, saddexagalka AED iyo BEC waa isku qaab (congruent) iyadoo la adeegsanayo RHS.

Soo koobid

Saddexagalka isku qaab (Congruent triangles) (RHS)

Saddexagalka qumman (right-angled triangle) oo kaliya, waxaad caddayn kartaa isku qaabnimada (congruence) adigoo adeegsanaya hypotenuse (hypotenuse) iyo dhinac kale. Tan waxaa loo yaqaan RHS (xagal qumman - hypotenuse - dhinac).