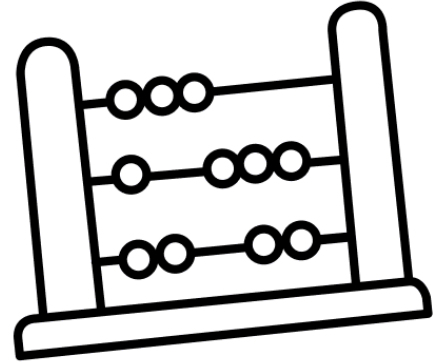


Isku mid (Congruent) ama isku qaab (Similar) ama midna



Maths

Cutub: Sifooyin joomatari (Geometrical properties) iyo aragtida Pythagoras (Pythagoras' theorem)

Natiijo

Waxaan go'aamin karaa in qaababku yihiin isku qaab (Similar), isku mid (Congruent), ama midna.

Erayada muhiimka ah

Laba qaab waa isku qaab (Similar) haddii farqiga kaliya ee u dhexeeya uu yahay cabbirkooda. Dhererka dhinacyadoodu waa isku saami (proportions).

Haddii qaab uu si sax ah ugu habboonaado korka mid kale iyadoo la adeegsanayo wareeg (rotation), milicsi (reflection), ama guur (translation), markaas qaababku waa isku mid (Congruent).

Qaabka casharka

Isku mid (Congruent) ama isku qaab (Similar) ama midna



Kala soocida isku qaabka (Similarity) iyo isku midnimada (Congruence)

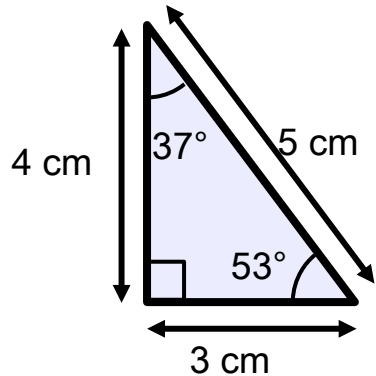


Hubinta isku qaabka (Similarity) iyo isku midnimada (Congruence)

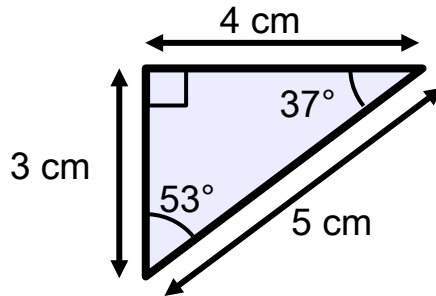
Marka laba qaab ay yihiin isku mid (Congruent), xagluhu waa isku mid qaab kasta, iyo dhererku waa isku mid qaab kasta.

Marka laba qaab ay yihiin isku qaab (Similar), xagluhu waa isku mid qaab kasta, iyo dhererku waa isku saami (proportions).

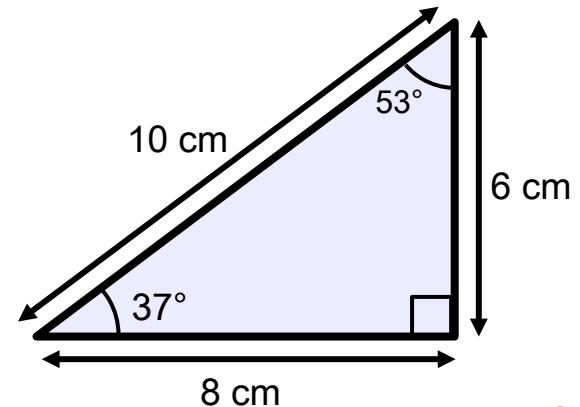
Qaabka A (Shape A)



isku mid (Congruent) leh Qaabka A



Ila mid ah Qaabka A (similar to Shape A)



Haddii laba qaab ay isku mid yihiin (congruent) markaas waxay sidoo kale yihiin kuwo isku eeg (similar).

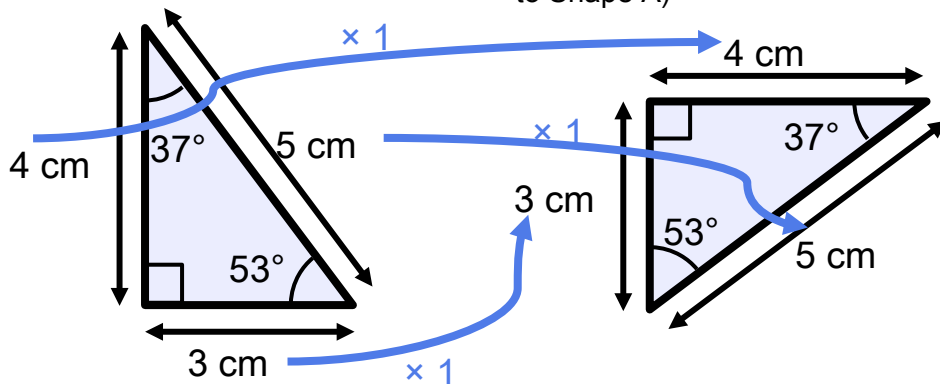
Haddii laba qaab ay isku eeg yihiin (similar) markaas daruuri ma aha inay isku mid yihiin (congruent).

Qaababka isku eeg (similar) waxay isku mid noqdaan (congruent) oo keliya haddii qodobka miisaanka (scale factor) u dhexeeya uu yahay 1.

Qaabka A (Shape A)

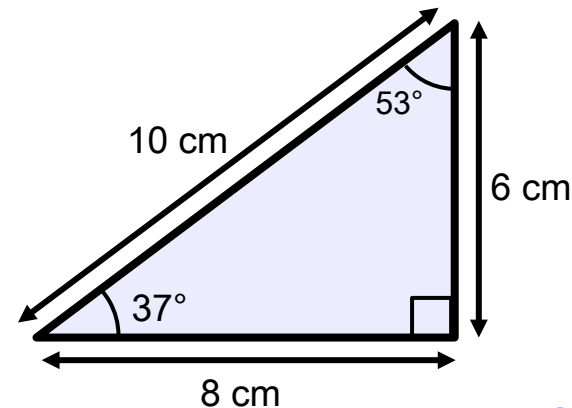
la mid ah Qaabka A (congruent to Shape A)

sidoo kale la mid ah Qaabka A (also similar to Shape A)



la mid ah Qaabka A (similar to Shape A)

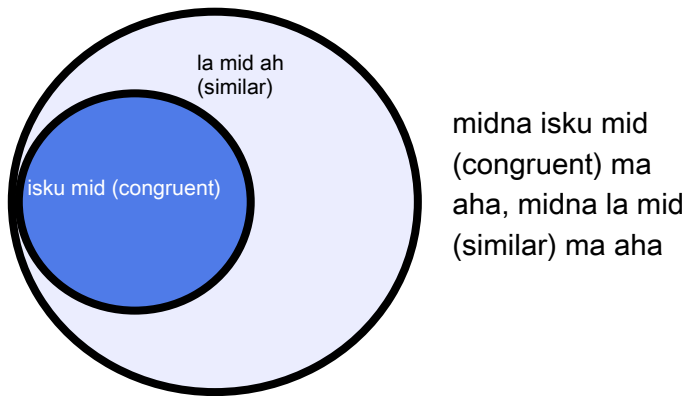
aan la mid ahayn Qaabka A (incongruent to Shape A)



Dhammaan lammaanaha qaababka isku midka ah (congruent) sidoo kale waa kuwo isku eeg (similar), laakiin qaar ka mid ah lammaanaha qaababka isku eeg (similar) ayaa sidoo kale isku mid ah (congruent).

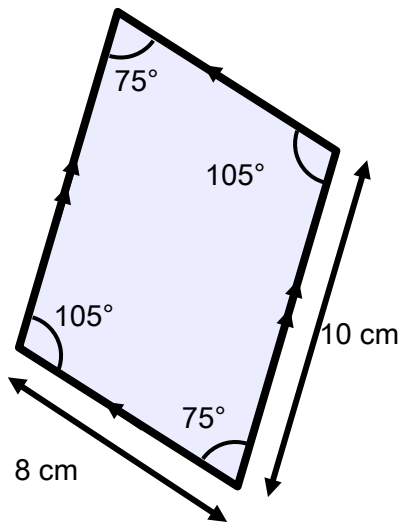
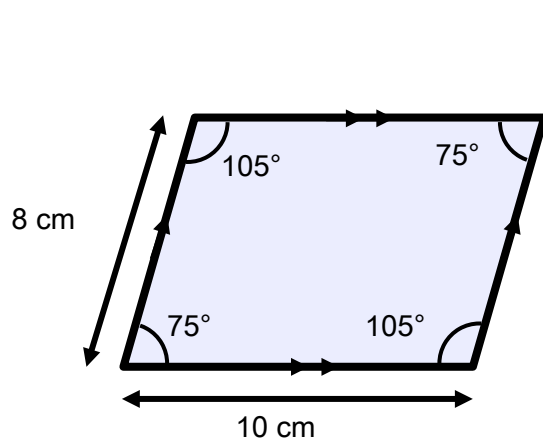
Sheegista in qaababku yihiin isku mid (congruent) waxay sidoo kale tusinaysaa inay yihiin kuwa la mid ah (similar). Sidaa darteed, waxaa ku filan in la sheego in qaababku yihiin isku mid (congruent) iyada oo aan la sheegin inay sidoo kale yihiin kuwa la mid ah (similar).

Laba qaab oo sidoo kale ma noqon karaan kuwa isku mid ah (congruent) iyo kuwa la mid ah (similar) midna.



Kala soocida isku midnimada (congruence) iyo la midnimada (similarity)

Qaababkani ma yihiin isku mid (congruent), la mid (similar), ama midna?



Ma khasaynayso in jihooyinku kala duwan yihiin.

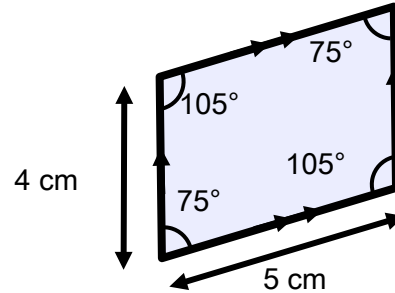
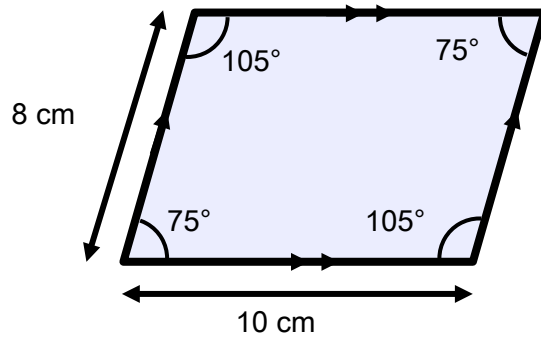
Labaduba waa isku barbarro (parallelograms) oo leh dherer iyo xaglo isku mid ah. Sidaa darteed, waa isku mid (congruent).



Nuur

Kala soocida isku midnimada (congruence) iyo la midnimada (similarity)

Qaababkani ma yihiin isku mid (congruent), la mid (similar), ama midna?



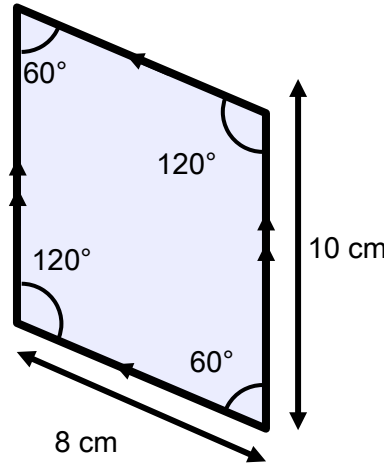
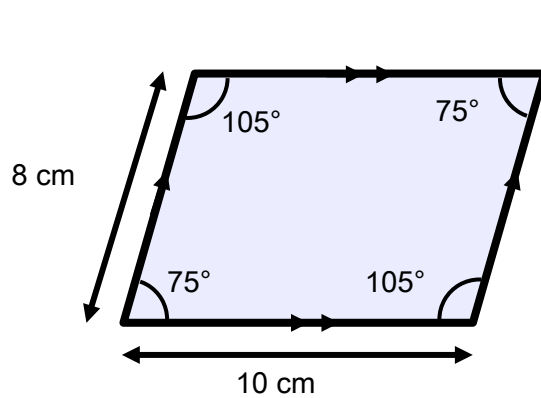
Ma aha isku mid (congruent) sababtoo ah dhererka way kala duwan yihiin. Mid ka mid ah qaababku waa weyneyn (enlargement) kan kale, sidaa darteed waa la mid (similar).



Layla

Kala saarista isku midnimada (similarity) iyo isku eegnimada (congruence)

Ma qaababkani waa isku eeg (congruent), isku mid (similar), ama midna?



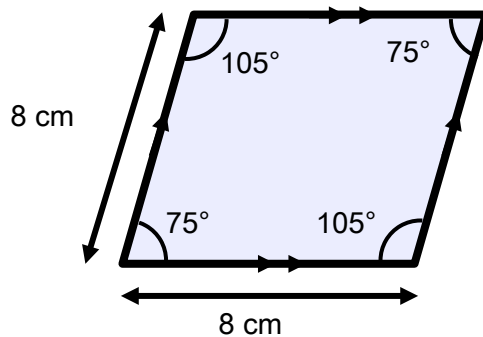
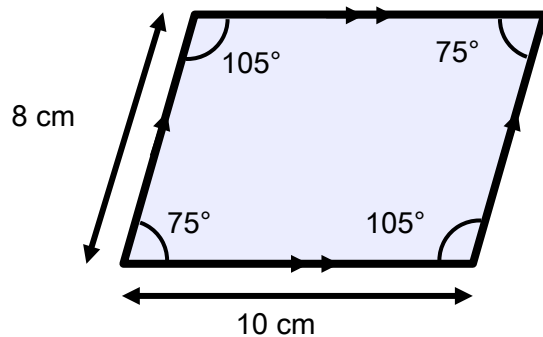
Xagluhu way kala duwan yihiin, marka ma aha isku eeg (congruent) mana aha isku mid (similar).



Cabdi

Kala saarista isku midnimada (similarity) iyo isku eegnimada (congruence)

Ma qaababkani waa isku eeg (congruent), isku mid (similar), ama midna?



Xagluhu waa isku mid laakiin dhererku waa kala duwan yahay. Taasi ma macneheedu waa inay isku mid (similar) yihiin?



Suad

Dhererku isku saami (proportion) kuma wada jiraan, marka ma aha isku mid (similar). Ma aha isku eeg (congruent) mana aha isku mid (similar).



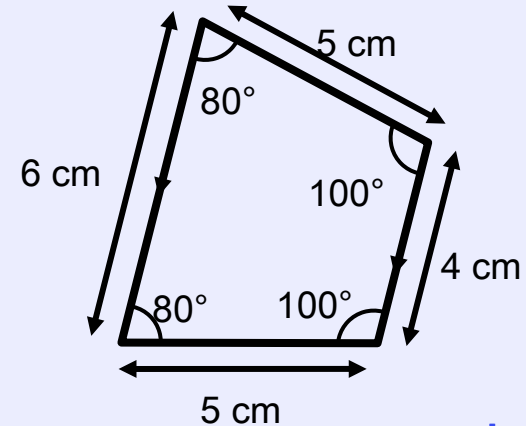
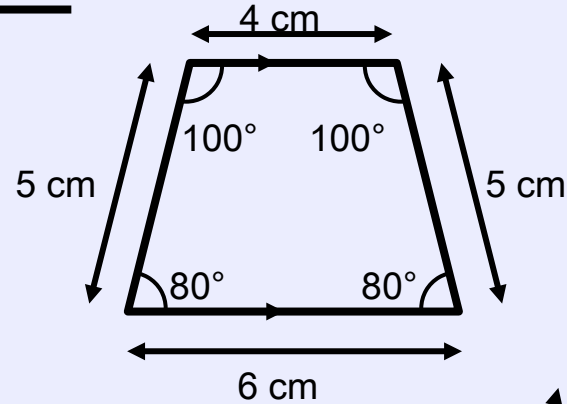
Caasha

Kala saarista isku midnimada (similarity) iyo isku eegnimada (congruence)



Hubi

Labada qaab waa .
Buuxi meesha bannaan.



a

isku eeg (congruent)



b

isku mid (similar)

c

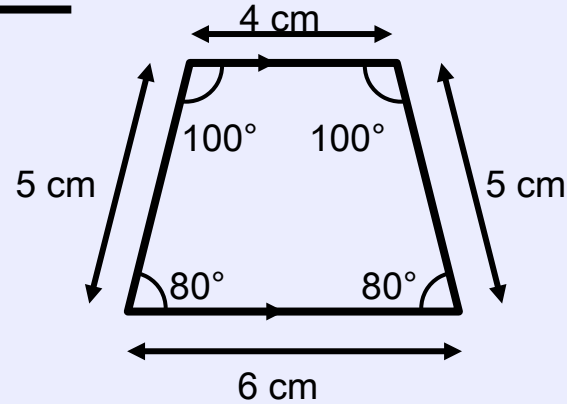
midna isku mid (congruent) ma aha, midna isku mid (similar) ma aha

Kala soocida isku mid (similarity) iyo isku mid (congruence)



Hubi

Laba qaab ee waa .
Buuxi meesha bannaan.



a

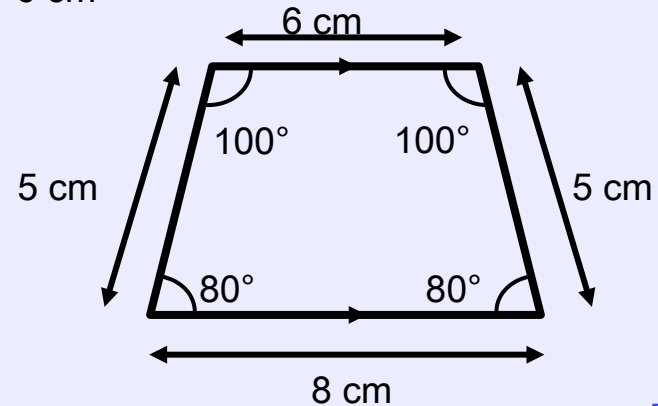
isku mid (congruent)

b

isku mid (similar)

c

midna isku mid (congruent) ma aha, midna isku mid (similar) ma aha

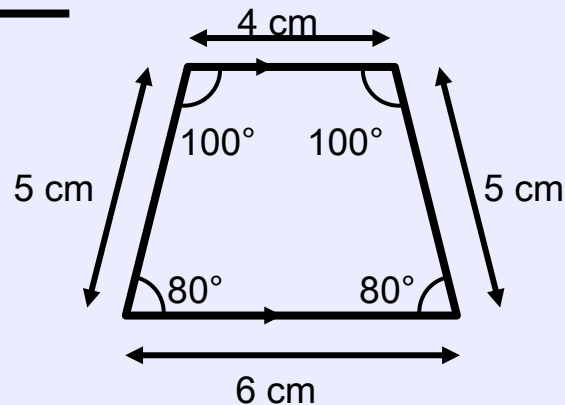


Kala soocida isku ekaanshaha (similarity) iyo isku qaabnimo (congruence)



Hubi

Labada qaab waa .
Buuxi meesha bannaan.



a

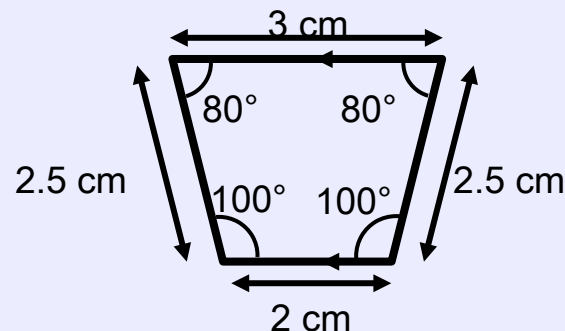
isku qaab (congruent)

b

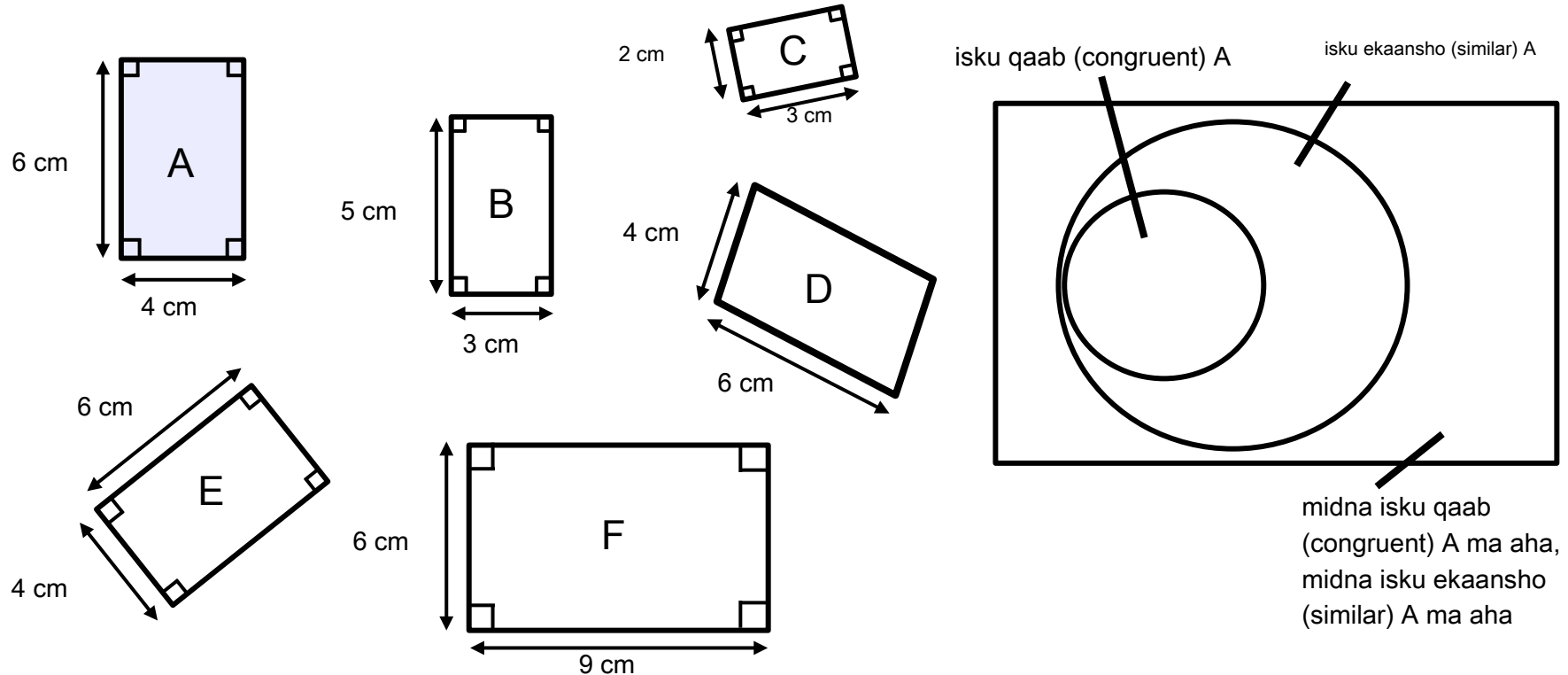
isku ekaansho (similar) ✓

c

midna isku qaab (congruent) ma aha, midna isku ekaansho (similar) ma aha

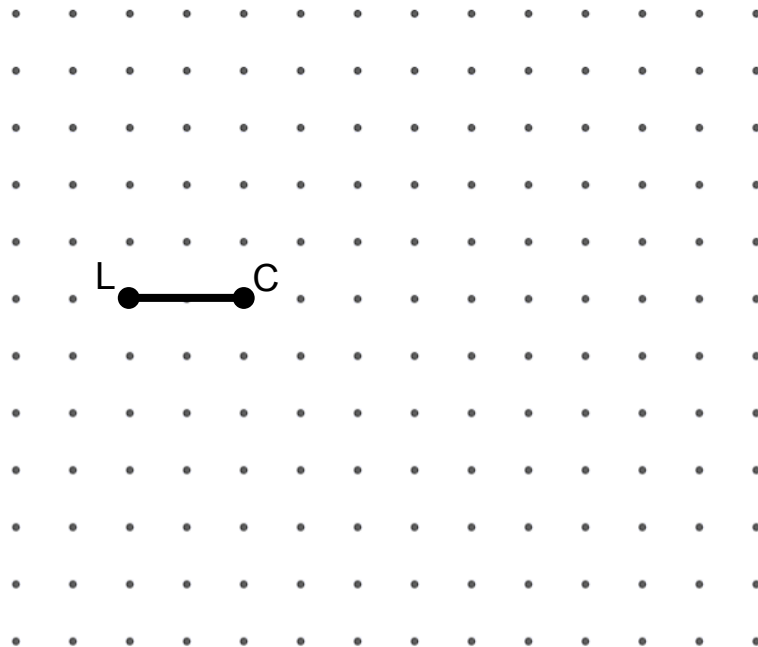


1) Qaab kasta la barbar dhig Qaabka A oo ku qor xuruufta B ilaa F jaantuska Venn (Venn diagram).



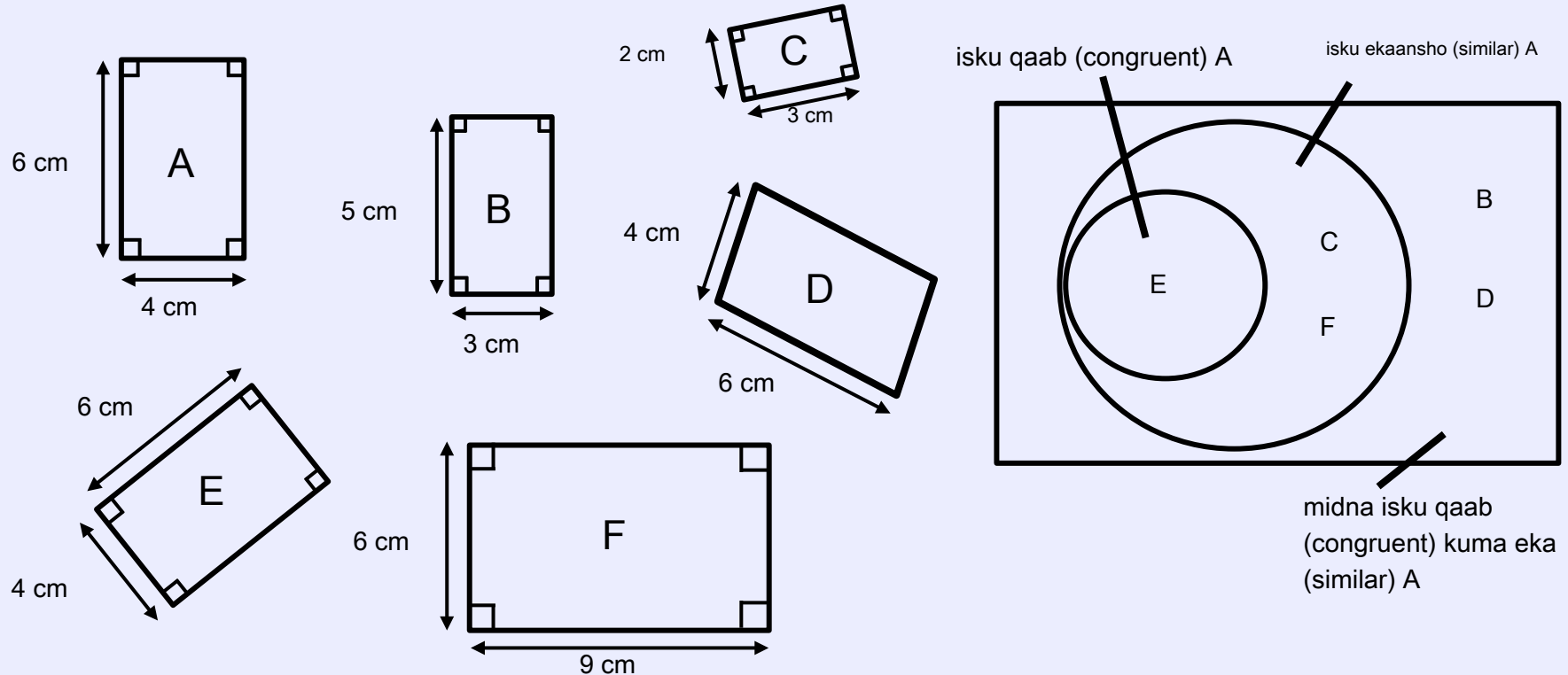
2) Macluumaadku wuxuu qeexayaa shan leydi oo isku xiran, oo leh geesaha A ilaa L.

- LC waa xariiq toosan oo leh dherer 2 halbeeg.
- Barta F waxay ka hoosaysaa barta C, $CF = 2LC$.
- LCFI waa leydi (rectangle).
- KLIJ wuxuu la siman yahay (congruent) LCFI.
- ABCL wuxuu la siman yahay (congruent) LCFI.
- CDEF wuxuu la mid yahay (similar) LCFI laakiin ma aha isku mid (congruent).
- FGHI wuxuu la mid yahay (similar) LCFI laakiin ma aha isku mid (congruent).



Isticmaal macluumaadka si aad ugu sawirto dhibcaha A ilaa L shabkada oo a

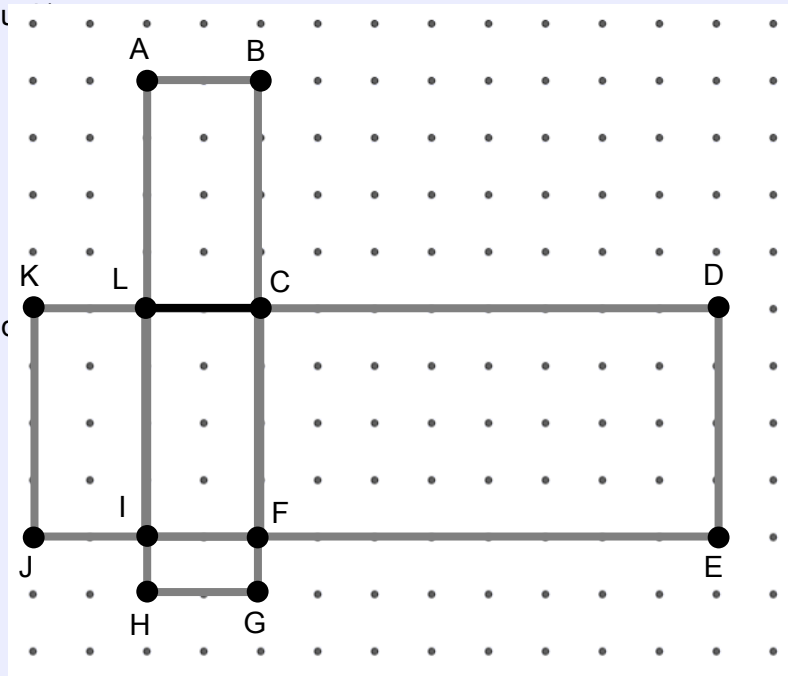
1) Isbarbardhig qaab kasta (shape) iyo Qaabka A, kadibna ku qor xarfaha B ilaa F jaantuska Venn.



2) Macluumaadka ayaa qeexaya shan leexleex (rectangle) oo isku xidhan, oo leh geesaha (vertices) dhibcaha A ilaa L.

- LC waa xariijin jiif (horizontal line) oo dhererkeedu yahay 2 halbeeg (u
- Dhibicda F waxay ka hooseysaa Dhibicda C, $CF = 2LC$.
- LCFI waa leydi (rectangle).
- KLIJ waa isku mid (congruent) LCFI.
- ABCL waa isku mid (congruent) LCFI.
- CDEF waa la mid (similar) LCFI laakiin ma aha isku mid (congruent).
- FGHI waa la mid (similar) LCFI laakiin ma aha isku mid (congruent).

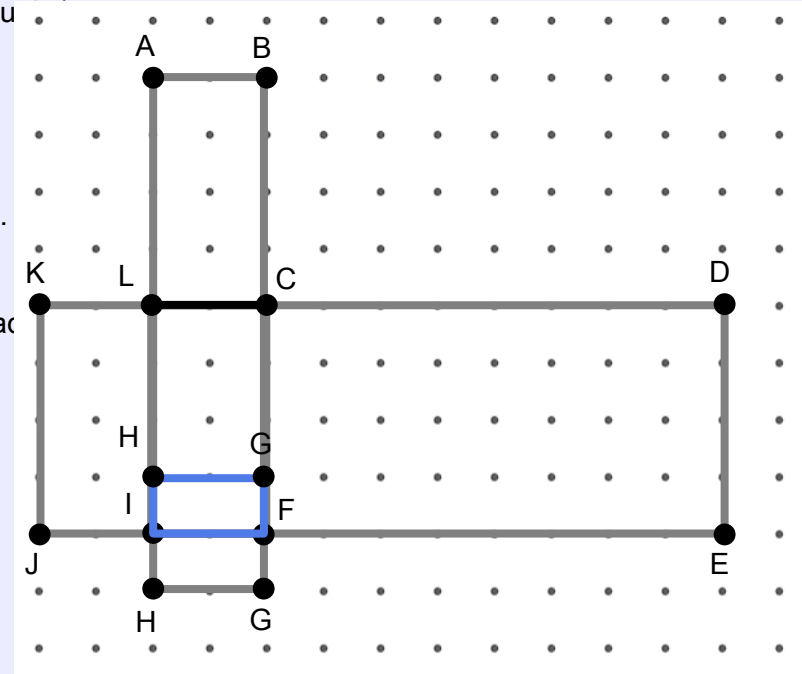
Isticmaal macluumaadka si aad ugu calaamaddo dhibcaha A ilaa L shabakad



2) Macluumaadku wuxuu qeexayaa shan leydi (rectangles) oo isku xiran, oo leh geesaha A ilaa L.

- LC waa xariiq toosan (horizontal line) oo dhererkiisu yahay 2 cutub (u
- Dhibicda F waxay ka hooseysaa dhibicda C iyo $CF = 2LC$.
- LCFI waa leydi (rectangle).
- KLIJ waa isku mid (congruent) LCFI.
- ABCL waa isku mid (congruent) LCFI.
- CDEF waa la mid (similar) LCFI laakiin ma aha isku mid (congruent).
- FGHI waa la mid (similar) LCFI laakiin ma aha isku mid (congruent).

Isticmaal macluumaadka si aad ugu calaamaddo dhibcaha A ilaa L shabakadda



Xalalka kale waa suurtagal haddii leydi (rectangles) is-dul-saraan, DE waa go'an sababtoo ah booska shabakadda (grid).

Qaabka casharka

Isku mid (congruent) ama la mid (similar) ama midna



Kala soocida isku midnimada (congruence) iyo la midnimada (similarity)



Hubinta la midnimada (similarity) iyo isku midnimada (congruence)



isku-xidhnaan
(congruence)

Haddii laba qaab isku-xidhnaan (congruent) yihiin markaas...

la midnimo
(similarity)

Haddii laba qaab isku-ekaanta (similar) yihiin markaas...

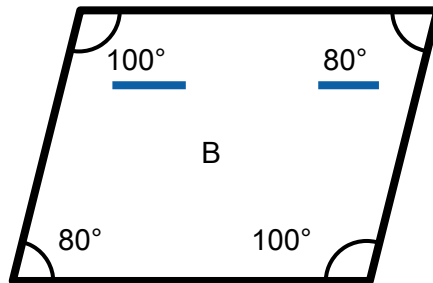
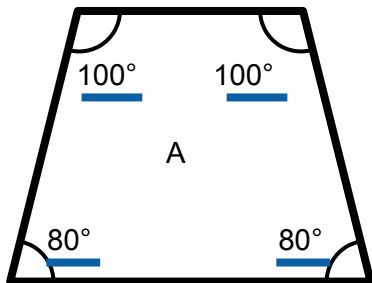
- dhererka (lengths) waa isku saami (proportions)

Haddii laba qaab xaglo kala duwan leeyihiin markaas waxaan ka reebi karnaa isku-xidhnaanta (congruence) iyo isku-ekaanta (similarity) labadaba.



Hubinta isku-xidhnaanta (congruence) iyo isku-ekaanta (similarity)

Miis (table) ayaa loo isticmaali karaa in lagu hubiyo in laba qaab ay leeyihiin isku xaglo isku nidaam ah.



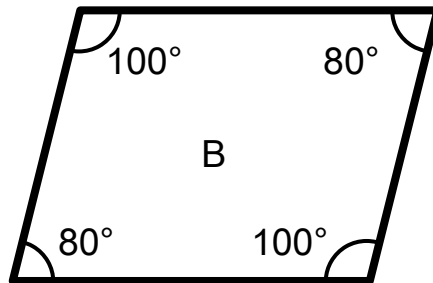
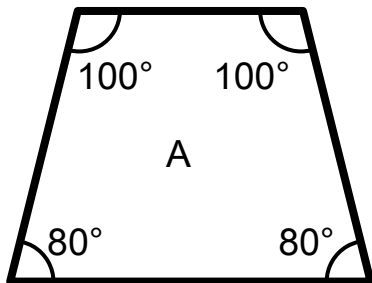
Halkan waxaa ah xagal 100° iyo 80° . Marka kuwani waxay geli karaan halkan miiska (table).

qaab A xaglaha	100°	100°	80°	80°
qaab B xaglaha		100°	80°	



Cali

Miis (table) ayaa loo isticmaali karaa in lagu hubiyo in laba qaab ay leeyihiin isku xaglo isku nidaam ah.



Laakiin markaa xaglaha kale isma eka.

Qaabka A wuxuu leeyahay xaglo isku xiga oo isku mid ah, laakiin qaabka B ma laha.

qaab A xaglaha	100°	100°	80°	80°
qaab B xaglaha	80°	100°	80°	100°

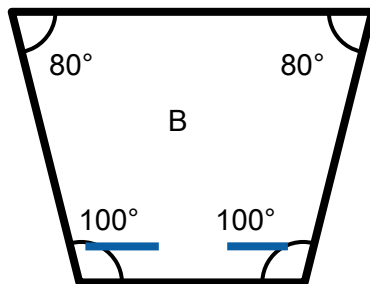
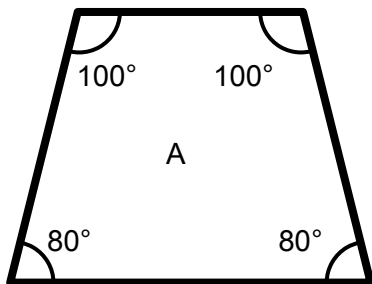


Cali

Xagluhu waa isku mid, laakiin isku hanaan ma aha. Sidaas darteed qaababku ma aha kuwo isku mid ah (congruent) iyo kuwo isku ekaansho (similar) ah midna.

Hubinta isku ekaanshaha (similarity) iyo isku midnimada (congruence)

Miis (table) ayaa loo isticmaali karaa in lagu hubiyo in laba qaab ay leeyihiin xaglo isku mid ah oo isku hanaan ah.



xagasha qaabka A	100°	100°	80°	80°
xagasha qaabka B	100°	100°		

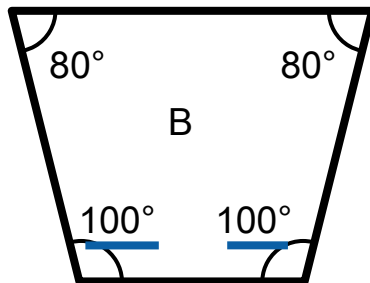
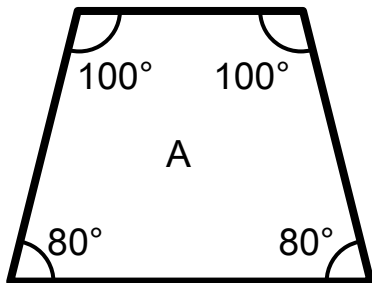
Halkan waxaa ah laba xagal oo isku xiga oo 100° ah.

Waxaan ku dari karaa kuwan miiska marka hore, ka dibna buuxin karaa inta kale.



Isra

Miis (table) ayaa loo isticmaali karaa in lagu hubiyo in laba qaab ay leeyihiin xaglo isku mid ah oo isku hanaan ah.



Waxaan ku buuxin karaa miiska si ay dhammaan xagluhu isu qabtaan.

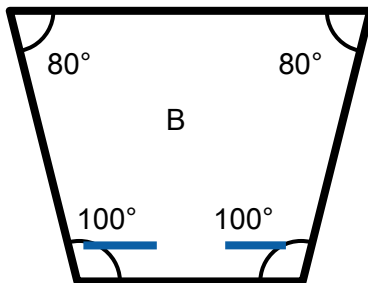
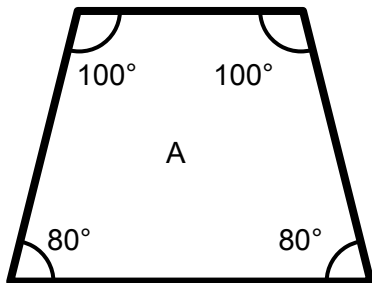
xagasha qaabka A	100°	100°	80°	80°
xagasha qaabka B	100°	100°	80°	80°

Qaababku waxay leeyihiin xaglo isku mid ah oo isku hanaan ah, sidaas darteed waxay noqon karaan kuwo isku mid ah (congruent) ama isku ekaansho (similar) ah.



Isra

Miis (table) ayaa loo isticmaali karaa in lagu hubiyo in laba qaab ay leeyihiin xaglo isku mid ah oo isku hanaan ah.



Waxaan u baahanahay inaan ogaado dhererka qaar ka hor intaan go'aamin karin inay yihiin kuwa isku mid ah (congruent) ama isku eeg (similar).

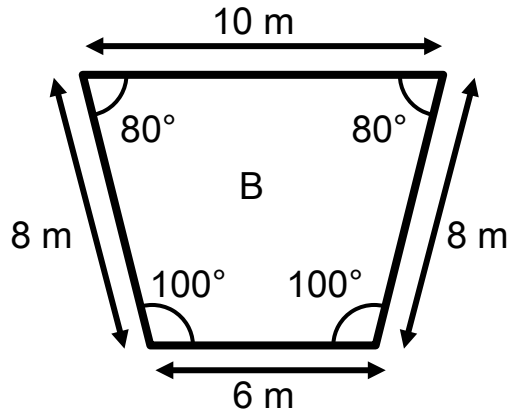
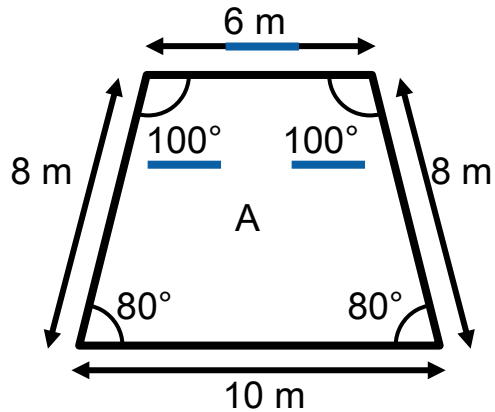
xagasha qaabka A	100°	100°	80°	80°
xagasha qaabka B	100°	100°	80°	80°

Qaababku waxay leeyihiin xaglaha isku midka ah isku hagaag, marka waxay noqon karaan kuwa isku mid ah (congruent) ama isku eeg (similar).



Isra

Miis ayaa loo isticmaali karaa in lagu hubiyo xiriirka isku dhufashada (multiplicative) ee u dhexeeya dhererka.



Cidhifka u dhexeeya labada xagal ee 100° waa 6m.

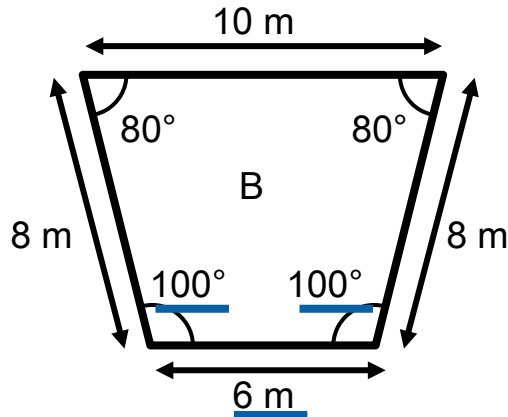
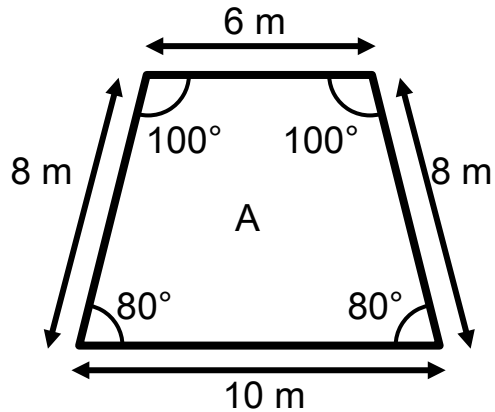
Waxaan ka buuxin karaa inta ka hartay miiska si la mid ah.



Isra

xaglaha (angles)	<u>100°</u>	<u>100°</u>	80°	80°
dhererka qaabka A (m)	6	8	10	8
dhererka qaabka B (m)				

Miis ayaa loo isticmaali karaa in lagu hubiyo xiriirka isku dhufashada (multiplicative) ee u dhexeeya dhererka.



Cidhifka u dhexeeya labadan xagal ee 100° sidoo kale waa 6m.

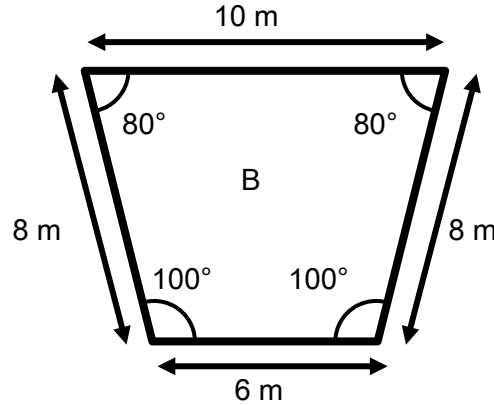
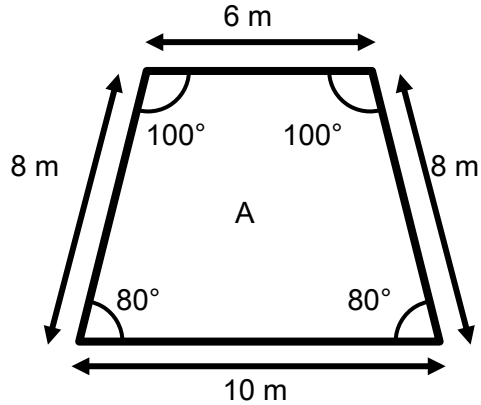
Waxaan ka buuxin karaa inta ka hartay miiska si la mid ah.



Isra

xaglaha (angles)	<u>100°</u>	<u>100°</u>	80°	80°
dhererka qaabka A (m)	6	8	10	8
dhererka qaabka B (m)	6	8	10	8

Miis ayaa loo isticmaali karaa in lagu hubiyo xiriirka isku dhufashada (multiplicative) ee u dhexeeya dhererka.



Dhererka (lengths) waa isku mid labada qaab.

Marka waa isku qaab (congruent).

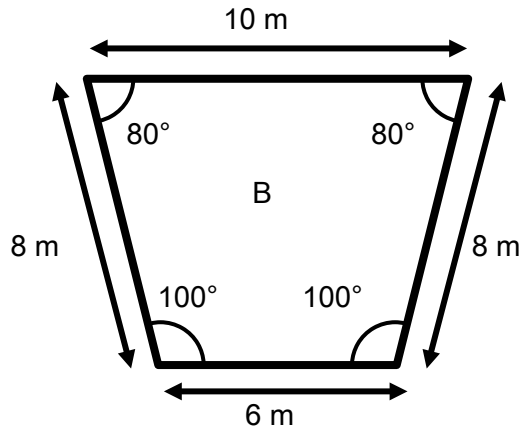
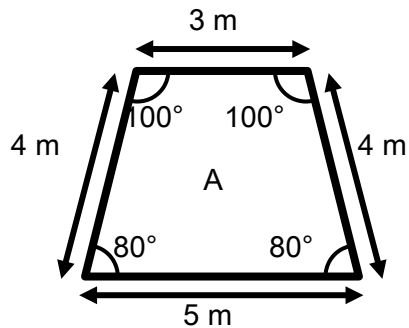


Isra

xaglaha (angles)	100°	100°	80°	80°
dhererka qaabka A (m)	6 ↙ × 1	8 ↙ × 1	10 ↙ × 1	8 ↙ × 1
shape B dhererka (lengths) (m)	6	8	10	8

Hubinta isku ekaanshaha (similarity) iyo isku qaabnimo (congruence)

Shax (table) ayaa loo isticmaali karaa in lagu hubiyo xiriirka isku dhufashada (multiplicative) ee dhererka (lengths).



Xaaladdan, dhammaan dhererka (lengths) ee shape B waa labanlaab dhererka (lengths) u dhigma ee shape A.

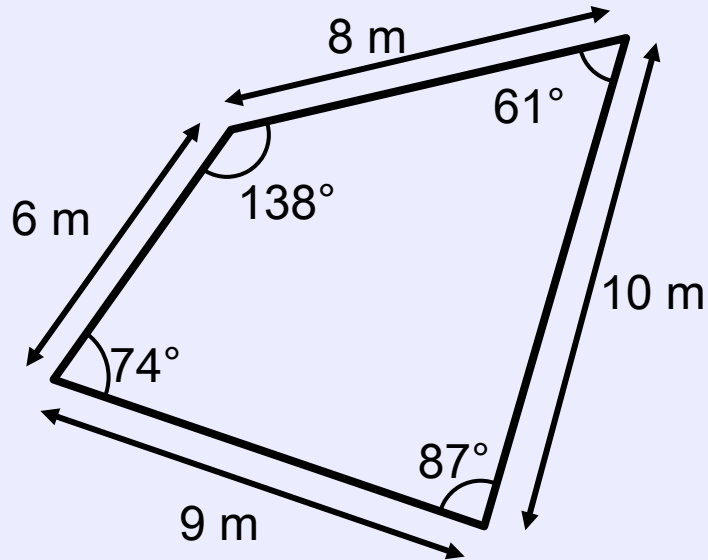
xaglaha (angles)	100°	100°	80°	80°
shape A dhererka (lengths) (m)	3	4	5	4
shape B dhererka (lengths) (m)	6	8	10	8



Isra

Hubinta isku ekaanshaha (similarity) iyo isku qaabnimo (congruence)

Waa maxay qiimaha (value) x?



xaglaha (angles)	138°	61°	87°	74°
amarka (lengths) (m)	8	10	x	6

$$X = 9$$

Hubinta isku ekaanshaha (similarity) iyo isku qaabnimo (congruence)



Hubi

Qaababka A iyo B waa .
Buuxi meesha bannaan.

xaglaha (angles)	138°	61°	87°	74°
dhererka qaabka A	8	10	9	6
dhererka qaabka B (m)	24	30	27	18

a isku qaab (congruent)

b isku ekaansha (similar) ✓

c midna isku mid (congruent) mana eka (similar)

Hubinta isku midnimada (congruence) iyo isku ekaanshaha (similarity)



Qaababka A iyo B waa .
Buuxi meesha bannaan.

a isku mid (congruent) ✓

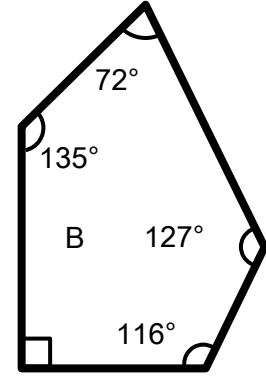
xaglaha (angles)	138°	61°	87°	74°
dhererka qaabka A	8	10	9	6
dhererka qaabka B (m)	8	10	9	6

b isku eka (similar)

c midna isku mid (congruent) mana eka (similar)

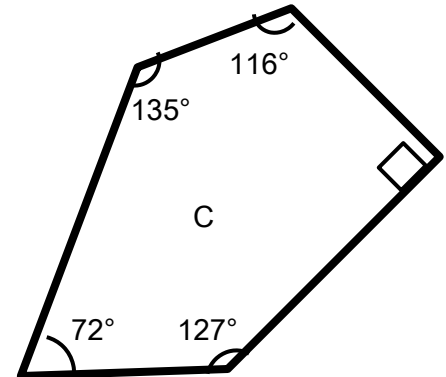
1) a) Buuxi shaxda qaababka B iyo C, isku habee xaglaha haddii aad karto.

xaglaha qaabka A (angles)	116°	127°	72°	135°	90°
xaglaha qaabka B (angles)					
xaglaha qaabka C (angles)					



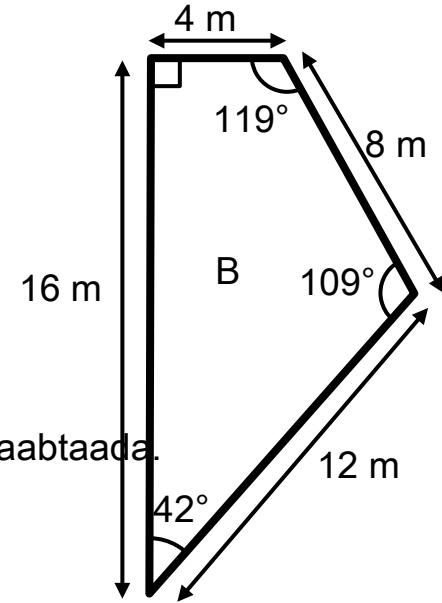
b) Qaabkee ayaan la mid ahayn (congruent) mana eka (similar) Qaabka A?

c) Ma suurtagal tahay in la go'aamiyo isku midnimada (congruence) qaabka kale? Sharh jawaabtaada.



2) a) Buuxi shaxda qaabka B.

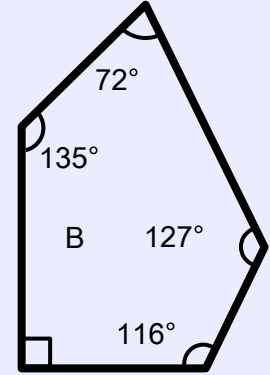
xaglaha (angles)	42°	109°	119°	90°
shape A dhererka (m)	6	4	2	8
shape B dhererka (m)				



b) Ma waa isku mid (congruent), isku eeg (similar) ama midna? Caddee jawaabtaada.

1) a) Buuxi jaantuska (table) ee shapes B iyo C, isku eeg xaglaha (angles) haddii aad karto.

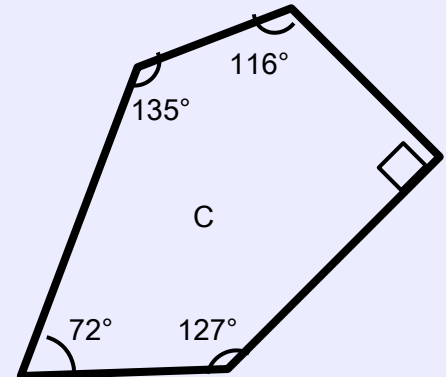
shape A xaglaha (angles)	116°	127°	72°	135°	90°
shape B xaglaha (angles)					
shape C xaglaha (angles)					



b) Waa kee shape aan isku eegnayn (similar) ama isku mid ahayn (congruent) Shape A?

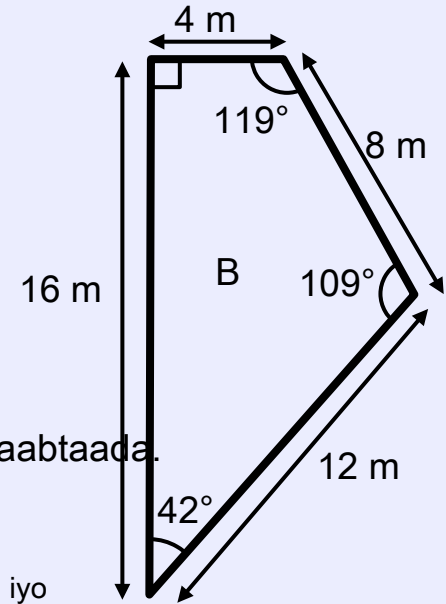
c) Ma suurtagal tahay in la go'aamiyo isku midnimada (congruence) ee shape kale? Sharax jawaabtaada.

Maya. Isku midnimada (congruence) lama go'aamin karo iyada oo aan la hubin in dhererka (lengths) isku mid yihiin.



2) a) Buuxi jaantuska (table) ee shape B.

xaglaha (angles)	42°	109°	119°	90°
shape A dhererka (m)	6	4	2	8
shape B dhererka (m)				



b) Ma waa isku mid (congruent), isku eeg (similar) ama midna? Caddee jawaabtaada.

Shape B wuxuu la mid yahay (similar) shape A. Waxay leeyihiin xaglaha (angles) isku mid ah iyo dhererka (lengths) ee shape B waa laba jibaar dhererka shape A.

Shape B waa weyneyn (enlargement) ee shape A oo leh qiyaasta (scale factor) 2.

- Haddii laba shape ay yihiin isku mid (congruent), markaas sidoo kale waa isku eeg (similar).
- Haddii laba qaab (shape) ay isku mid (similar) yihiin, macneheedu ma aha inay isku qaab (congruent) yihiin.
- Qaababka isku qaab (congruent) waxay leeyihiin cufnaan (scale factor) ah 1.
- Miiska saamiga (ratio table) wuxuu noqon karaa qalab waxtar leh oo lagu hubiyo tiro-ku-dhufashada (multipliers).
- Xiriirka tiro-ku-dhufashada (multiplicative relationship) ee u dhexeeya dhinacyada shayga (object) waa la ilaaliyaa sawirkiisa (image) marka la eego qaababka isku mid (similar) iyo isku qaab (congruent).