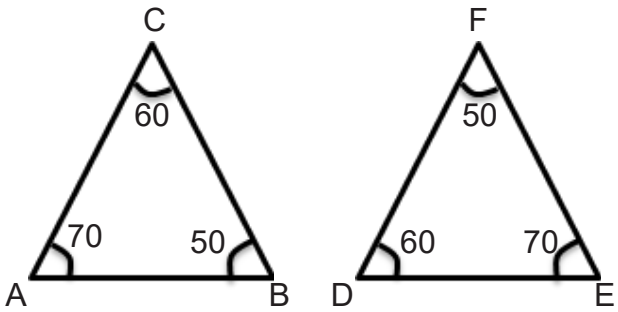
MATEMATİK

EŞ VE BENZER ŞEKİLLER

EŞ ŞEKİLLER:

- İki şeklin karşılıklı kenar uzunlukları ve açı ölçüleri eşit ise bu iki şekil eştir denir.
- Eşlik sembolü $\cong$ işaretidir.



- A = E BC = DF
- B = F AC = DE
- C = D AB = EF
- $ABC \cong EFD$

ÖRNEK:

$KLM \cong RPT$

Yukarıda iki üçgenin eşliği gösterilmiştir. Eş açıları ve eş kenarları bulalım.

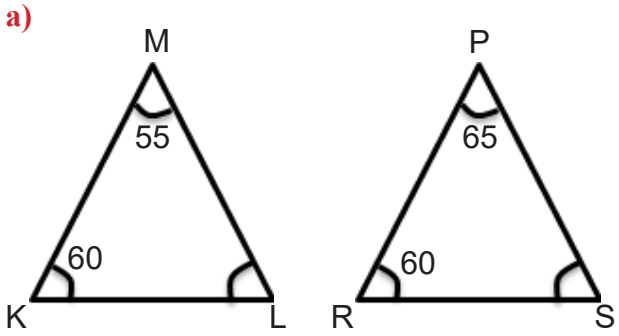
ÇÖZÜM:

- K = R, L = P, M = T açı ölçüleri eştir.
- KL = RP, LM = PT ve KM = RT kenar uzunlukları eşittir.
- Şekil çizilerekte bulunabilir. Ama zaman almaması için soru çözerken bu yolu kullanmak daha mantıklıdır.

ALIŞTIRMALAR:

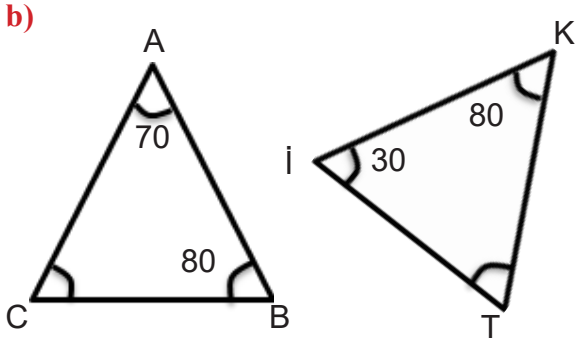
Aşağıda verilen üçgenlerin eşliklerini yazınız.

a)



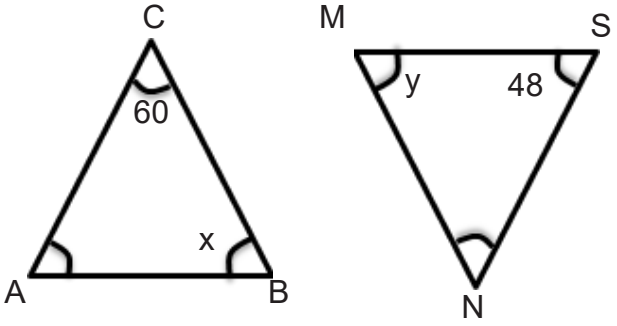
$\cong$

b)



$\cong$

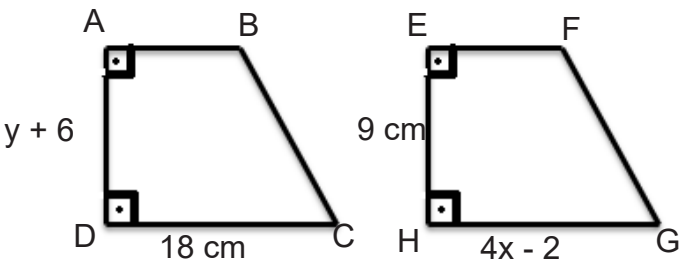
SORU:



$ABC \cong SNM$ ise x + y kaçtır?

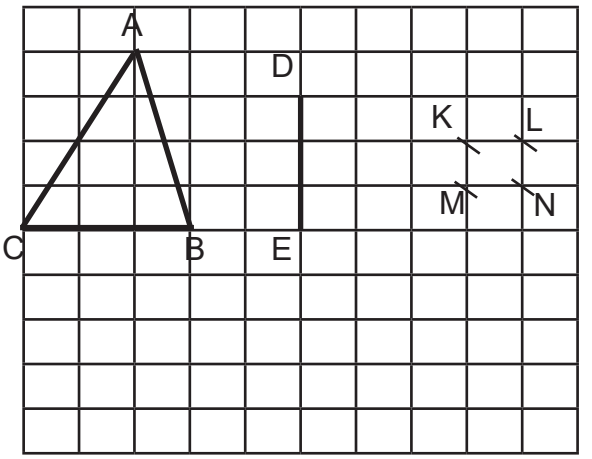
www.derslig.com

SORU:



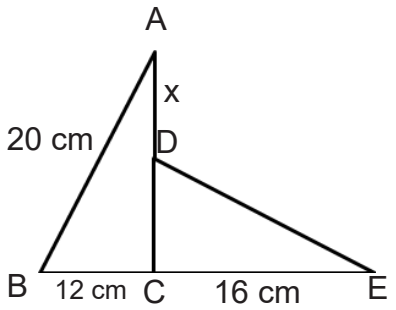
$ABCD \cong EFGH$ ise x + y kaçtır?

SORU:



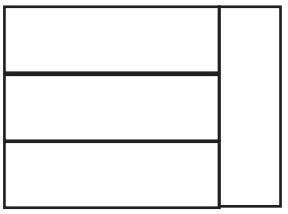
DE doğru parçası hangi nokta ile birleşirse oluşan üçgen ABC üçgeni ile eş olur?

SORU:



$ABC \cong EDC$ ise x kaçtır?

SORU:

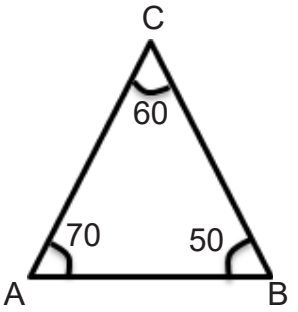


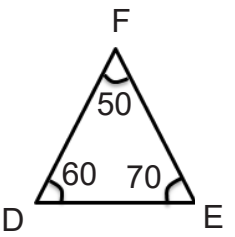
Kısa kenarı 4cm olan 4 tane eş dikdörtgenden oluşan şeklin çevresi kaç cm' dir?

www.derslig.com

BENZER ŞEKİLLER

- İki şeklin karşılıklı açı ölçüleri eşit ve kenar uzunlukları orantılı ise bu iki şekil benzerdir denir.
- Benzerlik sembolü $\sim ve ya \approx$ işaretidir.





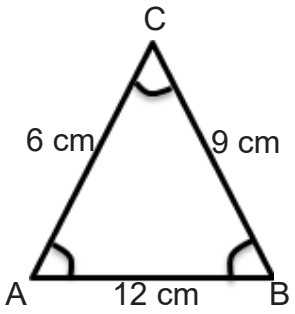
$$A = E$$
$$B = F$$
$$C = D$$

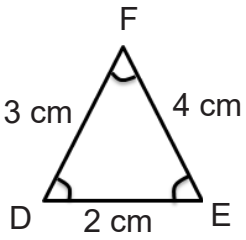
$$\frac{AB}{EF} = \frac{BC}{FD} = \frac{AC}{ED} = k$$

Benzerlik oranı

$$ABC \approx EFD$$

ÖRNEK:





ABC üçgeni ile yanındaki üçgen arasındaki benzerlik oranını bulup, benzer üçgenleri gösteriniz.

ÇÖZÜM:

$$\frac{6}{2}=\frac{9}{3}=\frac{12}{4}=3$$

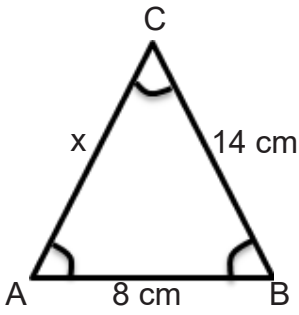
Benzerlik oranı

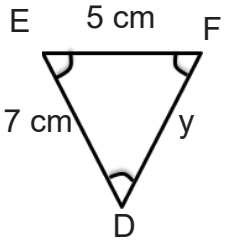
$$A=E$$
$$B=F$$
$$C=D$$

$$ABC \approx EFD$$

üçgenleri benzerdir.

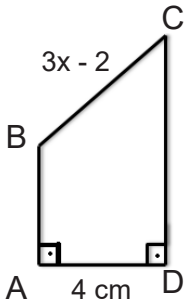
SORU:

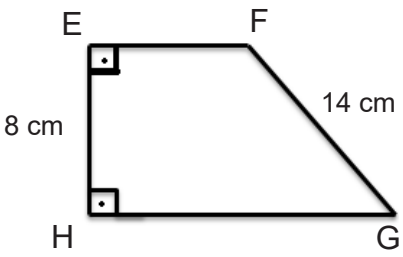




$ABC \approx FDE$ ise x + y kaçtır?

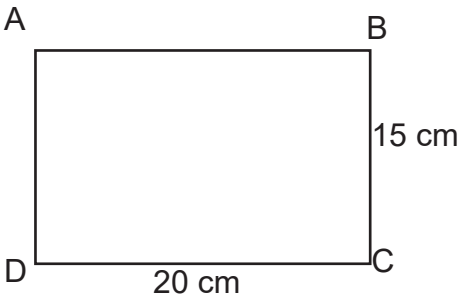
SORU:

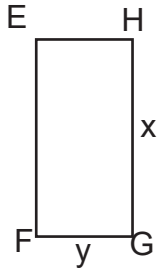




ABCD yamuğu ile EFGH yamuğu benzer ise x kaçtır?

SORU:





Şekildeki dikdörtgenler benzerdir. Bu dikdörtgenlerin benzerlik oranı $\frac{2}{5}$ ise x + y kaçtır?

BAKMADAN GEÇME:

- İki şeklin yükseklikleri oranı, kenarları oranı ve çevreleri oranı BENZERLİK ORANINA EŞİTTİR.
- İki şeklin alanları oranı BENZERLİK ORANININ KARESİNE EŞİTTİR.

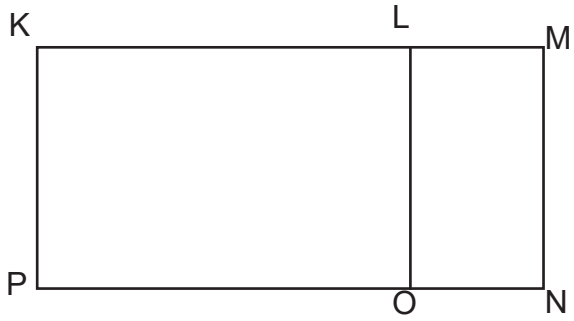
www.derslig.com

SORU:

ABC üçgeninin çevresinin KLM üçgeninin çevresine oranı $\frac{3}{4}$ tür.

$ABC \approx KLM$ ve |KL| = 12 cm ise |AB| =?

SORU:

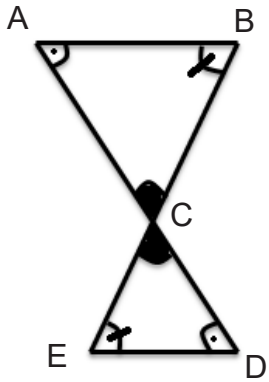


KLOP dikdörtgeninin alanının LONM dikdörtgeninin alanına oranı $\frac{36}{16}$ tir.

$KLOP \approx LONM$ ve |KL| = 9cm ise

|LO| ve |ON| kaçtır?

BAKMADAN GEÇME:

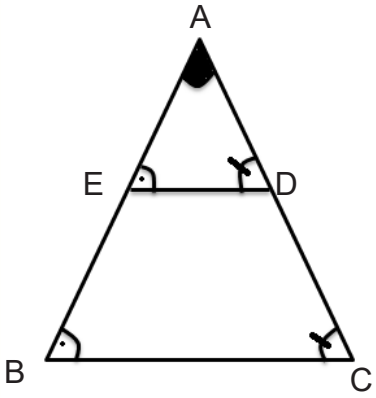


AB // DE ise

$$\frac{BC}{CE} = \frac{AC}{CD} = \frac{AB}{DE}$$

olur.

BAKMADAN GEÇME:

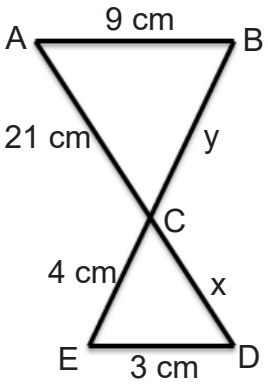


BC // DE ise

$$\frac{AE}{AB} = \frac{AD}{AC} = \frac{DE}{BC}$$

olur.

ÖRNEK:

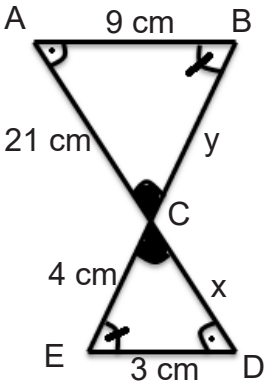


AB // DE ise

x = ?

y = ?

ÇÖZÜM:



$$\frac{9}{3} = \frac{21}{x} \qquad \frac{9}{3} = \frac{y}{4}$$

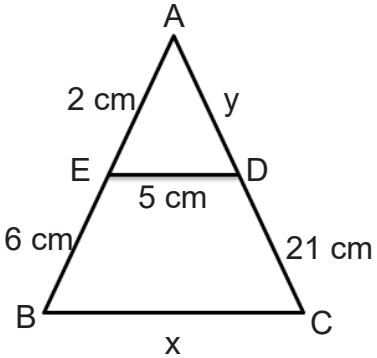
$$9.x = 21.3 \qquad 9.4 = 3.y$$

$$9x = 63 \qquad 36 = 3y$$

$$\frac{9x}{9} = \frac{63}{9} \qquad \frac{36}{3} = \frac{3y}{3}$$

$$x = 7cm \qquad y = 12cm$$

SORU:



BC // DE ise

x = ?

y = ?

www.derslig.com