

# Üçgende Benzerlik

## TEST 2

1. Temel benzerlik teoremi:

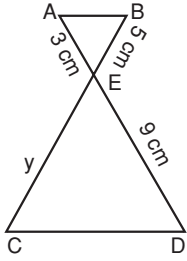
$$\frac{5}{5+10} = \frac{3}{3+x} = \frac{6}{y} \text{ 'dir.}$$

$$\Rightarrow y = 18, x = 6 \text{ bulunur.}$$

$$\Rightarrow x + y = 18 + 6 = 24 \text{ cm}$$

Cevap: B

2.

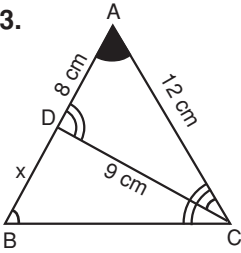


Kelebek kuralı:

$$\frac{3}{9} = \frac{5}{y} \Rightarrow y = 15$$

Cevap: A

3.



$$\widehat{ADC} \sim \widehat{ACB}$$

$$\frac{9}{|BC|} = \frac{12}{8+x} = \frac{8}{12}$$

$$\Rightarrow x = 10$$

Cevap: D

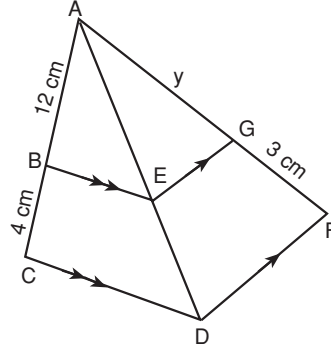
4. Kural gereği;

$$\frac{1}{6} = \frac{1}{x} + \frac{1}{18} \Rightarrow \frac{1}{x} = \frac{1}{6} - \frac{1}{18}$$

$$\Rightarrow \frac{1}{x} = \frac{3-1}{18} = \frac{2}{18} \Rightarrow x = 9 \text{ cm}$$

Cevap: B

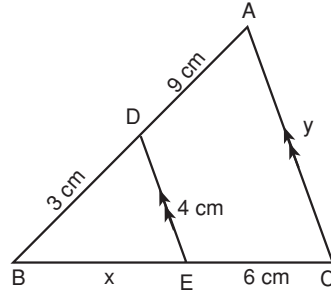
5.



$$\frac{12}{4} = \frac{|AE|}{|ED|} = \frac{y}{3} \Rightarrow y = 9$$

Cevap: C

6.

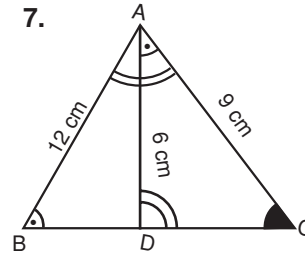


$$\frac{x}{x+6} = \frac{3}{3+9} = \frac{4}{y}$$

$$\Rightarrow x = 2y = 16 \Rightarrow x + y = 2 + 16 = 18$$

Cevap: D

7.



$$\widehat{ABC} \sim \widehat{DAC}$$

$$\frac{|BC|}{9} = \frac{9}{|DC|} = \frac{12}{6}$$

$$\Rightarrow |BC| = 18$$

$$\text{Ç } (\widehat{ABC}) = 12 + 9 + 18 = 39$$

Cevap: C

8. Küçük üçgen  $\widehat{DEF}$  olsun

Büyük üçgen  $\widehat{ABC}$  olsun

$$\frac{\text{Ç}(\widehat{DEF})}{\text{Ç}(\widehat{ABC})} = k \Rightarrow \frac{16}{32} = \frac{1}{2} = k \text{ 'dir.}$$

$$\frac{A(\widehat{DEF})}{A(\widehat{ABC})} = k^2 \Rightarrow \left(\frac{1}{2}\right)^2 = \frac{1}{4}$$

$$\left. \begin{array}{l} A(\widehat{DEF}) = m \\ A(\widehat{ABC}) = 4m \end{array} \right\} \Rightarrow \begin{array}{l} 4m + m = 40 \text{ cm}^2 \\ m = 8 \text{ cm}^2 \end{array}$$

$$\Rightarrow A(\widehat{DEF}) = m = 8 \text{ cm}^2$$

**Cevap: B**

9. Düzeltme:

$$|BC| = x + 1 \text{ 'dir.}$$

$$\Rightarrow \frac{|ADI|}{|BCI|} = \frac{|AEI|}{|ECI|} \text{ (Kelebek kuralı)}$$

$$\Rightarrow \frac{x+4}{x+1} = \frac{x}{1} =$$

$$\Rightarrow x+4 = x^2 + x$$

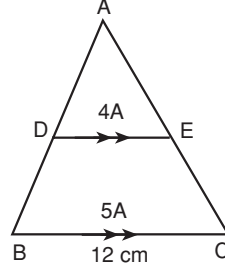
$$\Rightarrow x^2 = 4$$

$$\Rightarrow x = 2 \text{ cm bulunur.}$$

$$|AE| = x = 2 \text{ cm 'dir.}$$

**Cevap:**

10.



$$\frac{A(\widehat{ADE})}{A(\widehat{ABC})} = \frac{4A}{9A} = \frac{4}{9} = k^2$$

$$\Rightarrow k = \frac{2}{3}$$

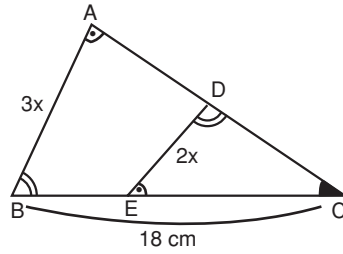
(k: Benzerlik oranı)

$$k = \frac{2}{3} = \frac{|DE|}{|BC|} = \frac{|DE|}{12}$$

$$\Rightarrow |DE| = 8 \text{ cm}$$

**Cevap: B**

11.



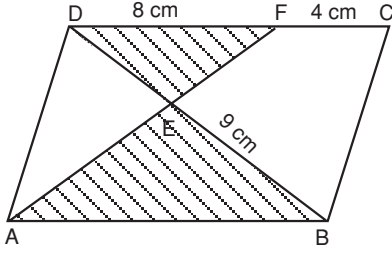
$$\widehat{DEC} \sim \widehat{BAC}$$

$$\frac{|EC|}{|AC|} = \frac{|DC|}{|BC|} = \frac{|DE|}{|BA|}$$

$$\Rightarrow \frac{|DC|}{18} = \frac{2x}{3x} \Rightarrow |DC| = 12$$

**Cevap: C**

12.



$$IABI = 8 + 4 = 12$$

Kelebek kuralından;

$$\frac{8}{12} = \frac{IDEI}{9} \Rightarrow IDEI = 6 \text{ cm}$$

$$\Rightarrow IBDI = 9 + 6 = 15 \text{ cm}$$

Cevap: D

13. Kelebek kuralından;

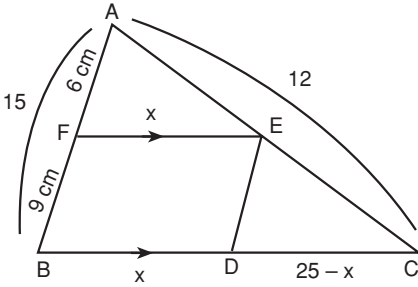
$$\frac{x}{x+4} = \frac{y}{y+6} = \frac{6}{18}$$

 $\Rightarrow x = 2y = 3$  bulunur.

$$\begin{aligned} \text{Ç}(\widehat{ABO}) &= x + 4 + y + 6 + 18 \\ &= x + y + 28 \\ &= 2 + 3 + 28 = 33 \end{aligned}$$

Cevap: C

14.



$$\text{Ç}(\widehat{ABC}) = 52 \text{ cm}$$

$$\frac{IAFI}{IABI} = \frac{IFEI}{IBCI} \quad (\text{Temel benzerlik teoremi})$$

$$\frac{6}{15} = \frac{x}{25} \Rightarrow x = 10$$

$$\text{Ç}(FBDE) = 2x + 18 = 2 \cdot 10 + 18 = 38$$

Cevap: D

15. Kural gereği;

$$\frac{1}{2} = \frac{1}{6} + \frac{1}{IFCI} \Rightarrow IFCI = 3$$

$$\frac{A(\widehat{BDE})}{A(\widehat{BCF})} = \left(\frac{2}{IFCI}\right)^2 = \left(\frac{2}{3}\right)^2 = \frac{4}{9}$$

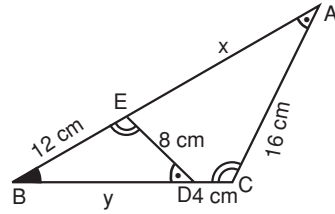
$$A(\widehat{BDE}) = 12 \text{ br}^2 \Rightarrow \frac{12}{A(\widehat{BCF})} = \frac{4}{9}$$

$$\Rightarrow A(\widehat{BCF}) = 27 \text{ br}^2$$

$$\begin{aligned} \Rightarrow A(\widehat{DCFE}) &= A(\widehat{BCF}) - A(\widehat{BDE}) \\ &= 27 - 12 = 15 \text{ br}^2 \end{aligned}$$

Cevap: A

16.



$$\widehat{ABC} \sim \widehat{DBE}$$

$$\frac{IBCI}{IBEI} = \frac{IACI}{IDFI} = \frac{IABI}{IDBI}$$

$$\Rightarrow \frac{y+4}{12} = \frac{16}{8} = \frac{12+x}{y}$$

$$\Rightarrow y = 20, x = 28 \text{ bulunur.}$$

$$\begin{aligned} x - y &= 28 - 20 \\ &= 8 \text{ bulunur.} \end{aligned}$$

Cevap: B