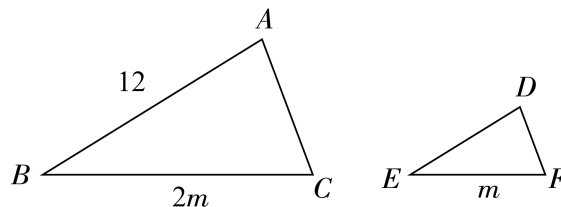


Similar Triangles

- 1 Triangle ABC is similar to triangle DEF such that A, B and C correspond to D, E and F . Given that the measure of $\angle ACB$ is 78° , then the measure of $\angle DFE$ is _____.

A. 102° B. 26° C. 39° D. 78°

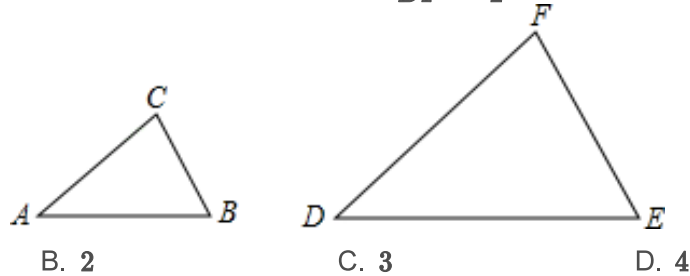
- 2 As shown in the figure below, $\triangle ABC \sim \triangle DEF$, which of the following is true?



- A. $m\angle B = m\angle F$ B. $DE = 6$
 C. The area of $\triangle ABC =$ The area of $\triangle DEF$ D. $AC = 4DF$

- 3 Triangle ABC is similar to triangle DEF such that A, B and C correspond to D, E and F . Given that $\frac{AB}{DE} = \frac{1}{2}$ and $EF = 10$, then BC is _____.

- 4 As shown in the figure below, $\triangle ABC \sim \triangle DEF$ and $\frac{AC}{DF} = \frac{1}{2}$ and $BC = 1$, then EF is _____.



5 Given that $\triangle ABC \sim \triangle DEF$, $AB : DE = 3 : 1$, $AC = 6$, then DF is _____.

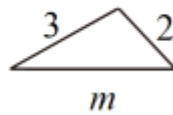
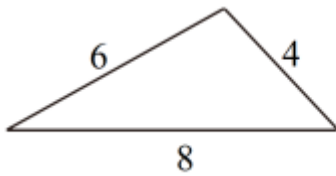
A. 18

B. 2

C. 54

D. $\frac{2}{3}$

6 The following two triangles are similar to each other, $m =$ _____.



A. 1

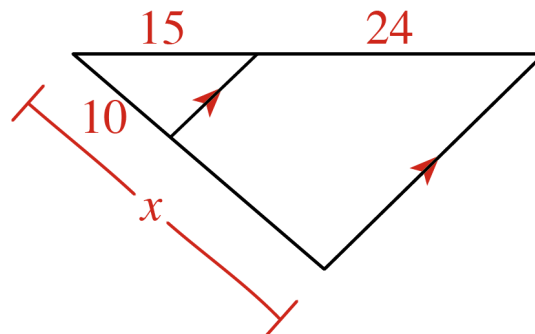
B. 2

C. 3

D. 4

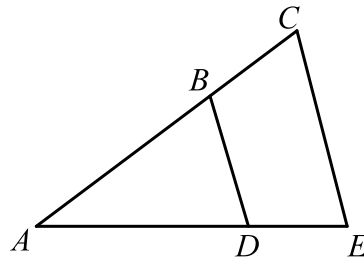
- 7 The small triangle and the large triangle in the diagram below are similar. Find the value of x .

$$x = \underline{\hspace{2cm}}$$



- 8 In the figure, ABC and ADE are straight lines and $\triangle ABD$ is similar to $\triangle ACE$.

If $BD = 6$ cm, $CE = 8$ cm and $BC = 3$ cm, $AB = \underline{\hspace{2cm}}$ cm.



9 If each side of $\triangle ABC$ is enlarged to 3 times its original size, forming $\triangle A'B'C'$, then the incorrect conclusion among the following is () .

- A. $\triangle ABC \sim \triangle A'B'C'$
- B. The ratio of the area of $\triangle ABC$ to that of $\triangle A'B'C'$ is $\frac{1}{3}$.
- C. The corresponding angles of $\triangle ABC$ and $\triangle A'B'C'$ are equal.
- D. The similarity ratio of $\triangle ABC$ to $\triangle A'B'C'$ is $\frac{1}{3}$.

10 Given that $\triangle ABC$ is similar to $\triangle DEF$. A, B, C are corresponding to D, E, F , respectively, $AC = 3$, $DF = 6$, and the length of median on side DE is 9, then the length of median on the side AB is _____ .

Similar Triangles

- 1 Triangle ABC is similar to triangle DEF such that A, B and C correspond to D, E and F . Given that the measure of $\angle ACB$ is 78° , then the measure of $\angle DFE$ is _____.

A. 102° B. 26° C. 39° D. 78°

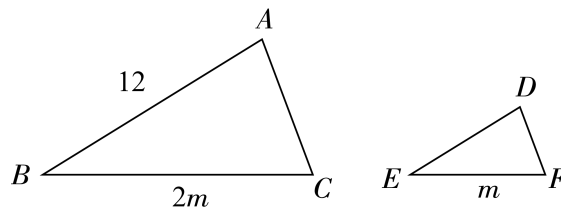
Answer D

Solution $\because \triangle ABC \sim \triangle DEF$

$$\angle DFE = \angle ACB = 78^\circ$$

The answer is D.

- 2 As shown in the figure below, $\triangle ABC \sim \triangle DEF$, which of the following is true?



- A. $m\angle B = m\angle F$ B. $DE = 6$
C. The area of $\triangle ABC$ = The area of $\triangle DEF$ D. $AC = 4DF$

Answer B

Solution $\frac{AB}{DE} = \frac{BC}{EF} = \frac{2m}{m} = 2$

$$\therefore AB = 12$$

$$\therefore DE = 6$$

The answer is B.

For option A, $m\angle B = m\angle E$, $m\angle C = m\angle F$.

$$\text{For option C, } \frac{A_{\triangle ABC}}{A_{\triangle DEF}} = \left(\frac{BC}{EF}\right)^2 = \frac{4}{1}$$

$$\text{For option D, } \frac{AC}{DF} = \frac{BC}{EF} = \frac{2}{1}$$

- 3 Triangle ABC is similar to triangle DEF such that A, B and C correspond to D, E and F . Given that $\frac{AB}{DE} = \frac{1}{2}$ and $EF = 10$, then BC is _____.

Answer 5

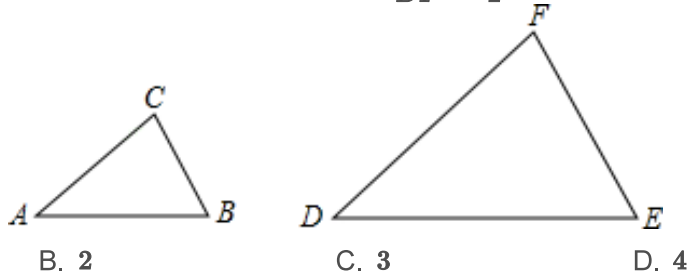
Solution $\because \triangle ABC \sim \triangle DEF$

$$\frac{AB}{DE} = \frac{BC}{EF} = \frac{1}{2}$$

$$\because EF = 10$$

$$\therefore BC = 5$$

- 4 As shown in the figure below, $\triangle ABC \sim \triangle DEF$ and $\frac{AC}{DF} = \frac{1}{2}$ and $BC = 1$, then EF is _____.



Answer B

Solution $\because \triangle ABC \sim \triangle DEF$

$$\therefore \frac{BC}{EF} = \frac{AC}{DF} = \frac{1}{2}$$

$$\because BC = 1$$

$$\therefore EF = 2$$

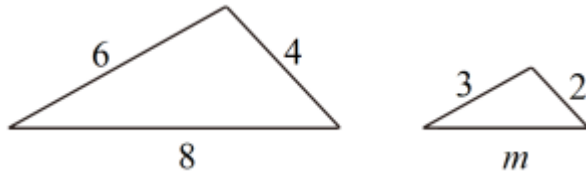
The answer is B.

- 5 Given that $\triangle ABC \sim \triangle DEF$, $AB : DE = 3 : 1$, $AC = 6$, then DF is _____.

A. 18 B. 2 C. 54 D. $\frac{2}{3}$

Answer B

6 The following two triangles are similar to each other, $m = \underline{\hspace{2cm}}$.



A. 1

B. 2

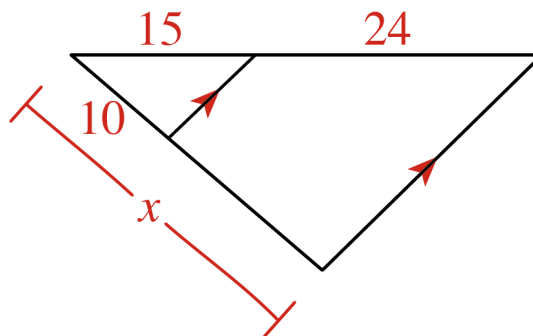
C. 3

D. 4

Answer D

7 The small triangle and the large triangle in the diagram below are similar. Find the value of x .

$x = \underline{\hspace{2cm}}$

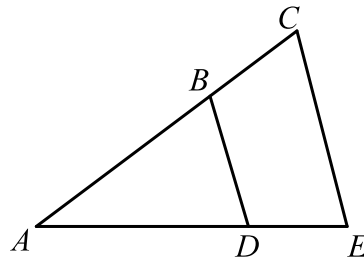


Answer 26

Solution $\frac{10}{x} = \frac{15}{39}$, $x = 26$.

8 In the figure, ABC and ADE are straight lines and $\triangle ABD$ is similar to $\triangle ACE$.

If $BD = 6$ cm, $CE = 8$ cm and $BC = 3$ cm, $AB = \underline{\hspace{2cm}}$ cm.



Answer 9

Solution $\because \triangle ABD \sim \triangle ACE$
 $\therefore \frac{AB}{AC} = \frac{BD}{CE} = \frac{6}{8} = \frac{3}{4}$
 $\therefore \frac{AB}{AB + BC} = \frac{3}{4}$
 $\therefore BC = 3 \text{ cm}$
 $\therefore \frac{AB}{AB + 3} = \frac{3}{4}$
 $\therefore AB = 9 \text{ cm}$

9 If each side of $\triangle ABC$ is enlarged to 3 times its original size, forming $\triangle A'B'C'$, then the incorrect conclusion among the following is ().

- A. $\triangle ABC \sim \triangle A'B'C'$
- B. The ratio of the area of $\triangle ABC$ to that of $\triangle A'B'C'$ is $\frac{1}{3}$.
- C. The corresponding angles of $\triangle ABC$ and $\triangle A'B'C'$ are equal.
- D. The similarity ratio of $\triangle ABC$ to $\triangle A'B'C'$ is $\frac{1}{3}$.

Answer B

Solution The ratio of the sides is $\frac{1}{3}$, so the ratio of the areas is $\left(\frac{1}{3}\right)^2 = \frac{1}{9}$.

The answer is B.

10 Given that $\triangle ABC$ is similar to $\triangle DEF$. A, B, C are corresponding to D, E, F , respectively, $AC = 3$, $DF = 6$, and the length of median on side DE is 9, then the length of median on the

side AB is _____.

Answer $\frac{9}{2}$

Solution We need to be careful on corresponding points.

$$\frac{AC}{DF} = \frac{\text{Median on } AB}{\text{Median on } DE} \Rightarrow \frac{3}{6} = \frac{\text{Median on } AB}{9} \Rightarrow \text{Median on } AB = \frac{9}{2}$$