



CREST Mathematics Olympiad (CMO) Worksheet *for* Class 6



Topic

Basic Geometrical Ideas



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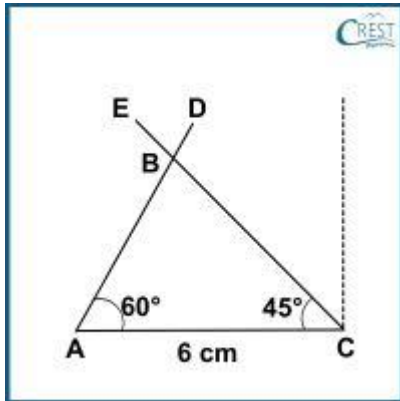
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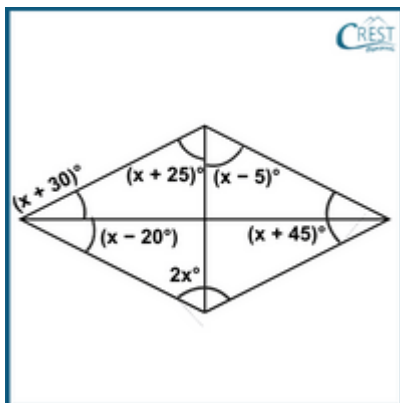
Worksheet on Basic Geometrical Ideas

1. What is the value of $\angle EBD$?



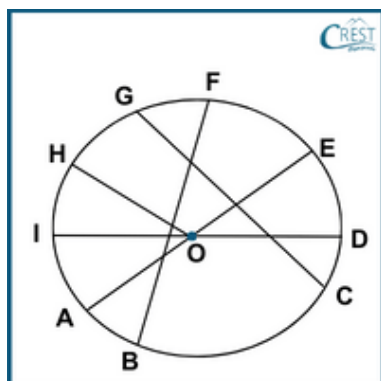
- a. 65°
- b. 75°
- c. 105°
- d. 115°

2. What is the value of x° ?



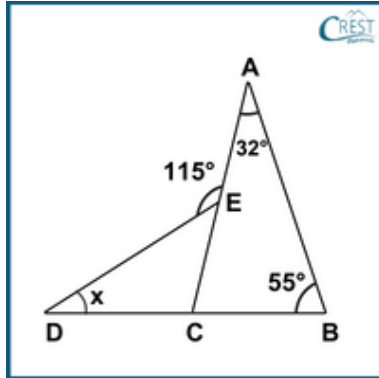
- a. $\frac{289^\circ}{7}$
- b. $\frac{290^\circ}{7}$
- c. $\frac{285^\circ}{7}$
- d. $\frac{285^\circ}{8}$

3. What is the length of OH if the length of AE is 9.39 cm?



- a. 4.5 cm
- b. 4.7 cm
- c. 4.9 cm
- d. 4.95 cm

4. What is the value of x if $\angle ABC = 55^\circ$, $\angle CAB = 32^\circ$ and obtuse angle $AED = 115^\circ$?



- a. 22°
- b. 26°
- c. 28°
- d. 30°

5. What is the radius of the circular field if the circumference is 363 metres?

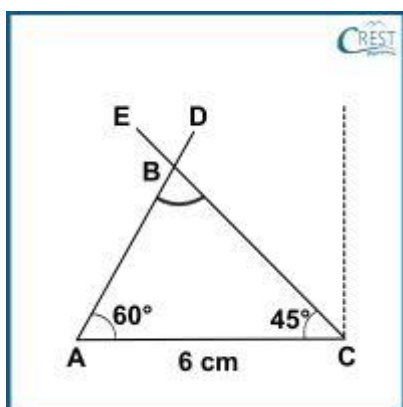


- a. 52.25 m
- b. 52.75 m
- c. 57.25 m
- d. 57.75 m

Answer Key

1. b - 75°

Explanation: In the given figure, $\angle EBD$ is marked.



In triangle ABC,

$\angle ABC + \angle BAC + \angle ACB = 180^\circ$ (Sum of its three angles in a triangle is 180°)

$$\Rightarrow \angle ABC + 60^\circ + 45^\circ = 180^\circ$$

$$\Rightarrow \angle ABC + 105^\circ = 180^\circ$$

$$\Rightarrow \angle ABC = 180^\circ - 105^\circ$$

$$\Rightarrow \angle ABC = 75^\circ$$

$$\angle EBD = \angle ABC = 75^\circ \text{ (Vertically Opposite Angle)}$$

2. c - $\frac{285^\circ}{7}$

Explanation: $(x + 30)^\circ + (x - 20)^\circ + 2x^\circ + (x + 45)^\circ + (x - 5)^\circ + (x + 25)^\circ = 360^\circ$

$$\Rightarrow 7x^\circ + 75^\circ = 360^\circ$$

$$\Rightarrow 7x^\circ = 360^\circ - 75^\circ$$

$$\Rightarrow 7x^\circ = 285^\circ$$

$$\Rightarrow x^\circ = \frac{285^\circ}{7}$$

3. b - 4.7 cm

Explanation: Length of AE (Diameter) = 9.39 cm

Length of OH (Radius)

$$= \text{Diameter}/2$$

$$= \text{AE}/2$$

$$= 9.39 \text{ cm}/2$$

$$= 4.695 \text{ cm}$$

$$= 4.70 \text{ cm (Round off)}$$

4. c - 28°

Explanation: Given: $\angle ABC = 55^\circ$, $\angle CAB = 32^\circ$ and $\angle AED = 115^\circ$

Exterior angle of a triangle is the sum of the measure of the two interior angles that are opposite to it.

In $\triangle ABC$,

$$\angle ACD = \angle ABC + \angle CAB$$

$$\Rightarrow \angle ACD = 55^\circ + 32^\circ$$

$$\Rightarrow \angle ACD = 87^\circ$$

In $\triangle CDE$,

$$\angle EDC + \angle ECD = \angle AED \quad (\angle ACD \text{ and } \angle ECD \text{ is the same angle})$$

$$\Rightarrow x + 87^\circ = 115^\circ$$

$$\Rightarrow x = 115^\circ - 87^\circ$$

$$\Rightarrow x = 28^\circ$$

5. d - 57.75 m

Explanation: Circumference of the circle = 363 metres

$$\Rightarrow 2 \times \frac{22}{7} \times r = 363$$

$$\Rightarrow r = 363 \times \frac{1}{2} \times \frac{7}{22}$$

$$\Rightarrow r = 57.75 \text{ m}$$

More Questions Coming Soon – Keep Learning!



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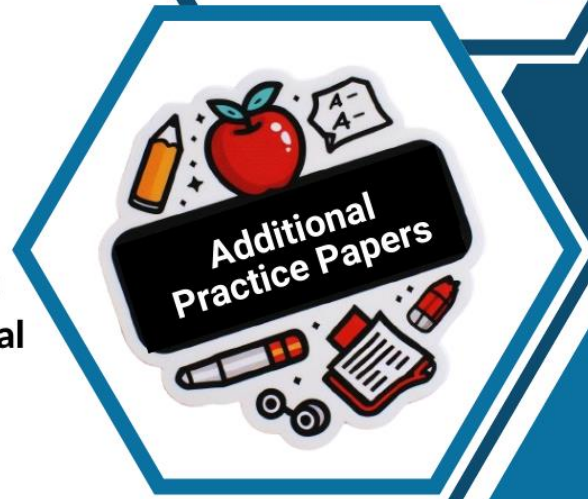
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