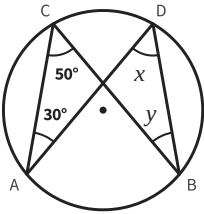


Circle Theorems: Angles in the Same Segment

ANSWERS

1 angles in the same segment are equal

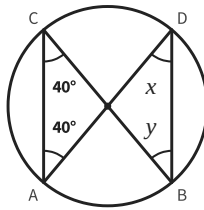
Find x and y .



$$x = 50^\circ \text{ same segment as angle C}$$

$$y = 30^\circ \text{ same segment as angle A}$$

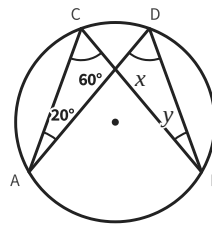
2 Find x and y .



$$x = 40^\circ \text{ same segment as angle C}$$

$$y = 40^\circ \text{ same segment as angle A}$$

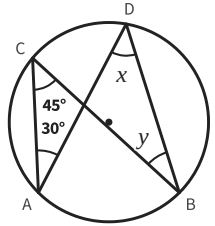
3 Find x and y .



$$x = 60^\circ \text{ same segment as angle C}$$

$$y = 20^\circ \text{ same segment as angle A}$$

4 Find x and y .

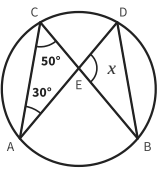


$$x = 45^\circ \text{ same segment as angle C}$$

$$y = 30^\circ \text{ same segment as angle A}$$

5 Notice the change!

Find x .



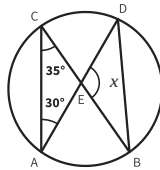
$$\text{Angle ADB} = 50^\circ \text{ same segment as angle C}$$

$$\text{Angle DBC} = 30^\circ \text{ same segment as angle A}$$

$$x = 180 - 50 - 30 \text{ (angles in a triangle)}$$

$$x = 100^\circ$$

6 Find x .



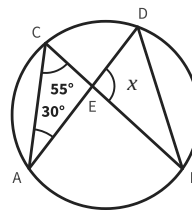
$$\text{Angle ADB} = 35^\circ \text{ same segment as angle C}$$

$$\text{Angle DBC} = 30^\circ \text{ same segment as angle A}$$

$$x = 180 - 35 - 30 \text{ (angles in a triangle)}$$

$$x = 115^\circ$$

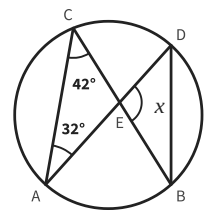
7 Find x .



$$x = 180 - 55 - 30 \text{ (angles in a triangle)}$$

$$x = 95^\circ$$

8 Find x .



$$x = 180 - 42 - 32 \text{ (angles in a triangle)}$$

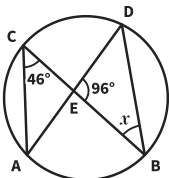
$$x = 106^\circ$$

Circle Theorems: Angles in the Same Segment further practice

ANSWERS

9

Chords AD and BC cross at E. Find angle CBD, marked x .



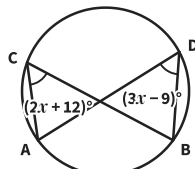
$$\text{angle ADB} = 46^\circ \text{ (same segment as angle ACB)}$$

$$x = 180 - 96 - 46 \text{ (triangle DEB)}$$

$$\text{Answer } x = 38^\circ$$

10

A, B, C and D are on the circle. Find the value of x .



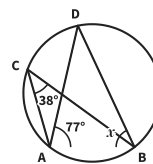
$$2x + 12 = 3x - 9 \text{ (same segment)}$$

$$21 = x$$

$$\text{Answer } x = 21$$

11

Goal posts A and B are on the edge of a round ice rink. Zara at C sees the posts 38° apart. Leo is at D. Both are on the edge. Find angle ABD.



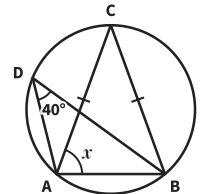
$$\text{angle ADB} = 38^\circ \text{ (same segment), so } \text{angle ABD} = 180 - 38 - 77$$

$$65^\circ$$

Answer

12

CA = CB. Find angle CAB, marked x .



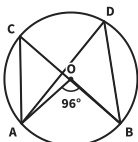
$$\text{angle ACB} = 40^\circ \text{ (same segment as angle ADB)}$$

$$x = (180 - 40) \div 2$$

$$\text{Answer } x = 70^\circ$$

13

On a round stage with centre O, a spotlight at O turns 96° to move from a dancer at A to one at B. Lights at C and D on the edge do the same. Through what angle does each turn?



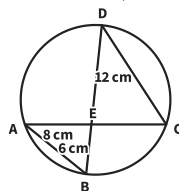
$$\text{ACB} = 96 \div 2 \text{ (angle at the centre)} = \text{ADB (same segment)}$$

$$48^\circ \text{ each}$$

Answer

14

Lead strips AC and BD in a round window cross at E. Explain why triangles ABE and DCE are similar, then find CE.



$$\text{angle BAC} = \text{angle BDC, angle ABD} = \text{angle ACD (same segment)}$$

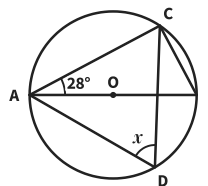
$$CE = 6 \times 12 \div 8$$

$$CE = 9 \text{ cm}$$

Answer

15

AB is a diameter. Find angle ADC, marked x .



$$\text{angle ACB} = 90^\circ, \text{ so angle ABC} = 62^\circ$$

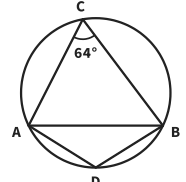
$$x = \text{angle ABC (same segment)}$$

$$x = 62^\circ$$

Answer

16

Sam says angle ADB = 64° because angles in the same segment are equal. Is Sam right? Explain.



$$C \text{ and } D \text{ are on opposite sides of } AB$$

$$ACBD \text{ is cyclic: } 180 - 64 = 116$$

$$\text{No, angle ADB} = 116^\circ$$

Answer