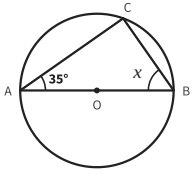


Circle Theorems: Angle in a Semicircle

ANSWERS

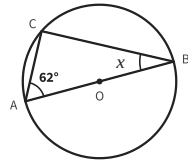
1 angle in a semicircle = 90°

Find x .



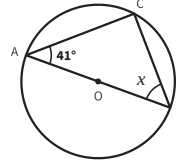
Angle C = 90°
 angle in a semicircle
 $x = 180 - 90 - 35$
 $x = 55^\circ$

2 Find x .



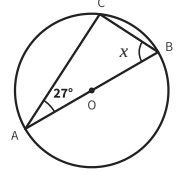
Angle C = 90°
 angle in a semicircle
 $x = 180 - 90 - 62$
 $x = 28^\circ$

3 Find x .



Angle C = 90°
 angle in a semicircle
 $x = 180 - 90 - 41$
 $x = 49^\circ$

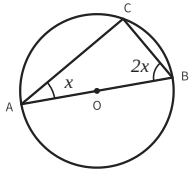
4 Find x .



Angle C = 90°
 angle in a semicircle
 $x = 180 - 90 - 27$
 $x = 63^\circ$

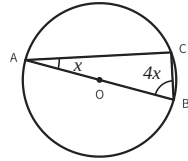
5 Notice the change!

Find x .



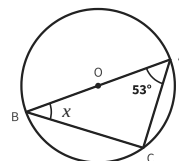
Angle C = 90°
 angle in a semicircle
 $x + 2x = 90$, so $3x = 90$
 $x = 30^\circ$

6 Find x .



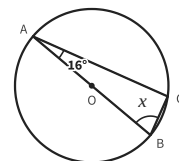
Angle C = 90°
 angle in a semicircle
 $x + 4x = 90$, so $5x = 90$
 $x = 18^\circ$

7 Find x .



Angle C = 90° (angle in a semicircle)
 $x = 180 - 90 - 53$
 $x = 37^\circ$

8 Find x .



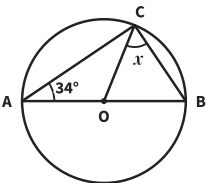
Angle C = 90° (angle in a semicircle)
 $x = 180 - 90 - 16$
 $x = 74^\circ$

Circle Theorems: Angle in a Semicircle further practice

ANSWERS

9

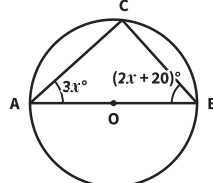
AB is a diameter and O is the centre. Find angle OCB, marked x .



angle ACB = 90° , so angle ABC = $180 - 90 - 34 = 56^\circ$
 $OB = OC$, so $x = \text{angle } OCB = 56^\circ$
 Answer $x = 56^\circ$

10

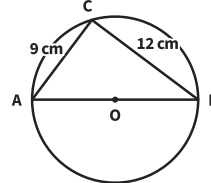
AB is a diameter of the circle. Find the value of x .



angle ACB = 90° , so $31x + 20 = 90$
 $5x = 70$
 Answer $x = 14$

11

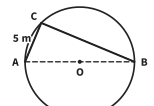
AB is a diameter of the circle. Find the radius of the circle.



angle ACB = 90° , so $AB = \sqrt{9^2 + 12^2} = 15 \text{ cm}$
 radius = $15 \div 2$
 Answer 7.5 cm

12

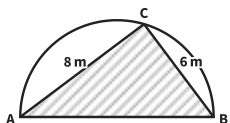
A round trampoline has a radius of 6.5 m. Ropes go from A and B, at the ends of a diameter, to C on the edge. Rope AC is 5 m long. How long is rope BC?



angle ACB = 90° and $AB = 13 \text{ m}$
 $BC = \sqrt{13^2 - 5^2} = \sqrt{144}$
 Answer 12 m

13

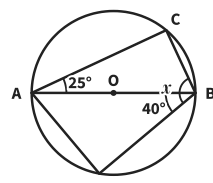
A flower bed is a semicircle with straight edge AB. A triangular patio ABC is laid in it, with C on the curved edge. Find the area of flower bed left. Give your answer in terms of π .



angle C = 90° , so $AB = 10 \text{ m}$ and the radius is 5 m
 $\frac{1}{2} \times \pi \times 5^2 - \frac{1}{2} \times 8 \times 6$
 Answer $(12.5\pi - 24) \text{ m}^2$

14

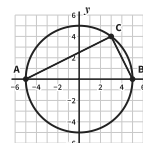
AB is a diameter. Find angle CBD, marked x .



angle ACB = 90° , so angle ABC = $90 - 25 = 65^\circ$
 $x = 65 + 40$
 Answer $x = 105^\circ$

15

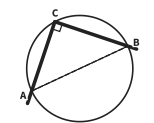
A circle has centre (0, 0) and radius 5. A is (-5, 0), B is (5, 0) and C is (3, k), with $k > 0$. Find k, then use gradients to show that angle ACB = 90° .



$3^2 + k^2 = 25$, so $k = 4$
 gradient AC = $4 \div 8 = \frac{1}{2}$, gradient BC = $4 \div -2 = -2$
 Answer $k = 4$, $\frac{1}{2} \times -2 = -1$

16

A carpenter puts the corner C of a set square on the edge of a round table top. Its edges cross the edge of the table at A and B. Explain why AB is a diameter, and how she can use this to find the centre.



angle ACB = 90° , and only a diameter makes 90° at the edge
 draw a second diameter the same way
 So two diameters cross at the centre