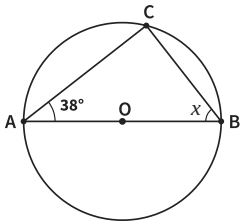
Circle theorems: angle in a semicircle

ANSWERS

1

AB is a diameter. Find x. Give a reason.



Angle ACB = 90°

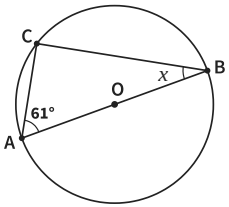
$x = 180 - 90 - 38$

$x =$ 52°

Reason: The angle in a semicircle is 90°.

2

AB is a diameter. Find x. Give a reason.



Angle ACB = 90°

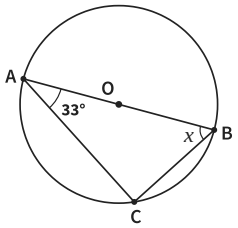
$x = 180 - 90 - 61$

$x =$ 29°

Reason: The angle in a semicircle is 90°.

3

AB is a diameter. Find x. Give a reason.



Angle ACB = 90°

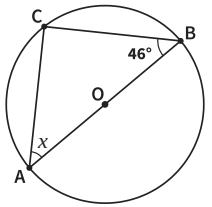
$x = 180 - 90 - 33$

$x =$ 57°

Reason: The angle in a semicircle is 90°.

4

AB is a diameter. Find x. Give a reason.



Angle ACB = 90°

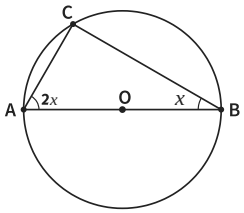
$x = 180 - 90 - 46$

$x =$ 44°

Reason: The angle in a semicircle is 90°.

5 Notice the change!

AB is a diameter. Find x. Give a reason.



Angle ACB = 90°

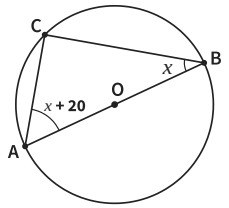
$2x + x = 90$

$x =$ 30

Reason: The angle in a semicircle is 90°.

6

AB is a diameter. Find x. Give a reason.



Angle ACB = 90°

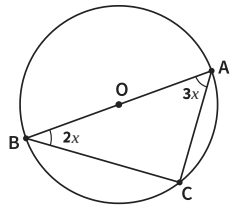
$x + 20 + x = 90$

$x =$ 35

Reason: The angle in a semicircle is 90°.

7

AB is a diameter. Find x. Give a reason.



Angle ACB = 90°

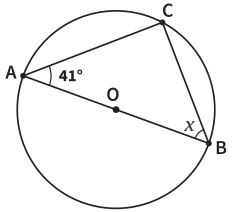
$3x + 2x = 90$

$x =$ 18

Reason: The angle in a semicircle is 90°.

8

AB is a diameter.
Sam says $x = 180 - 41 = 139°$.
Explain Sam's mistake.



angle ACB is 90°, so 180 − 90 − 41

Sam left out the right angle

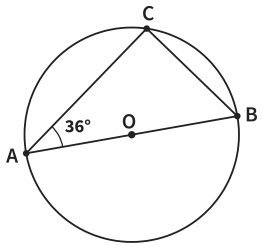
$x =$ 49°

Circle theorems: angle in a semicircle *further practice*

ANSWERS

9

AB is a diameter. Find angle ABC.



ACB = 90

180 − 90 − 36

Answer 54°

10

A, B and C are on a circle.
Angle ACB = 88°. Is AB a diameter?
Give a reason.

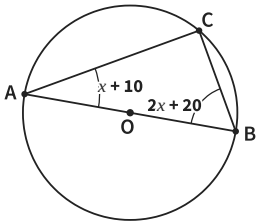
the angle in a semicircle is 90°

88° is not 90°

So No

11

AB is a diameter. Find x.



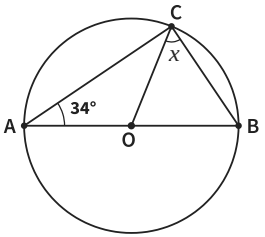
x + 10 + 2x + 20 = 90

3x = 60

Answer 20

12

O is the centre and AB is a diameter.
Find x.



OCA = 34 (OA = OC)

x = 90 − 34

Answer 56°

13

A rope is tied to two posts A and B at the ends of a diameter of a round pond, and pulled tight round a post C on the edge. The rope makes an angle of 31° with AB at A. Find the angle the rope makes at B.

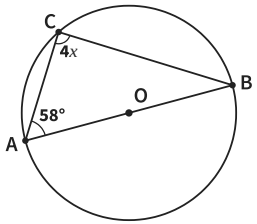
the angle at C is 90°

180 − 90 − 31

Answer 59°

14

AB is a diameter. Find x.



4x = 90

Answer 22.5

15

AB is a diameter of a circle and C is on the circle. Angle CAB is twice angle CBA. Find angle CAB.

CAB + CBA = 90

3 × CBA = 90, CBA = 30

Answer 60°

16

AB is a diameter. C is on the circle, AC = 6 cm and BC = 8 cm.
Find the radius of the circle.

angle ACB = 90°, so $AB^2 = 6^2 + 8^2 = 100$

AB = 10, radius = 5

Answer 5 cm