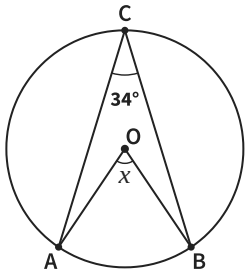
Circle theorems: angle at the centre

ANSWERS

1

O is the centre. Find x. Give a reason.



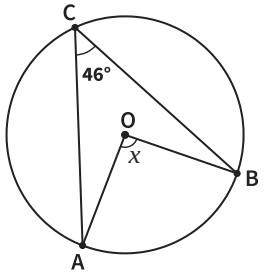
$x = 2 \times 34$

$x =$ 68°

Reason: The angle at the centre is twice the angle at the circumference.

2

O is the centre. Find x. Give a reason.



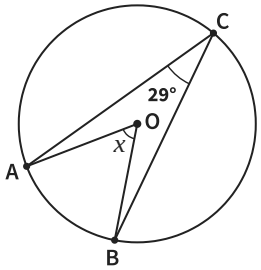
$x = 2 \times$ 46

$x =$ 92°

Reason: The angle at the centre is twice the angle at the circumference.

3

O is the centre. Find x. Give a reason.



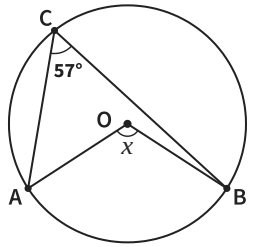
x = 2 × 29

$x =$ 58°

Reason: The angle at the centre is twice the angle at the circumference.

4

O is the centre. Find x. Give a reason.



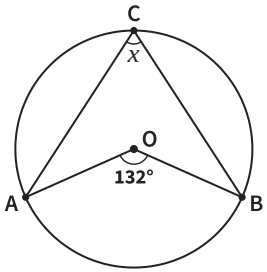
x = 2 × 57

$x =$ 114°

Reason: The angle at the centre is twice the angle at the circumference.

5 Notice the change!

O is the centre. Find x. Give a reason.



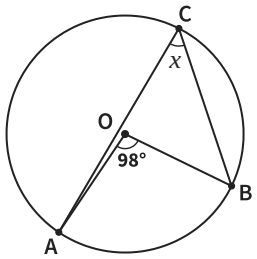
$132 = 2 \times x$

$x =$ 66°

Reason: The angle at the centre is twice the angle at the circumference.

6

O is the centre. Find x. Give a reason.



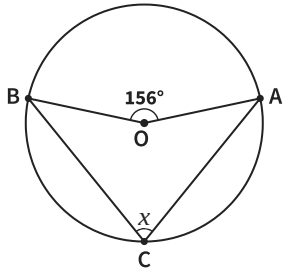
98 = 2 × x

$x =$ 49°

Reason: The angle at the centre is twice the angle at the circumference.

7

O is the centre. Find x. Give a reason.



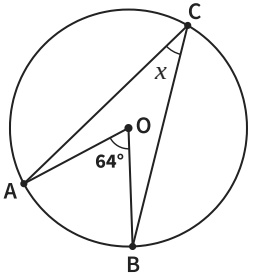
156 = 2 × x

$x =$ 78°

Reason: The angle at the centre is twice the angle at the circumference.

8

O is the centre. Jo says $x = 2 \times 64 = 128°$. Explain Jo's mistake.



64° is the angle at the centre:

x is half of it, not double

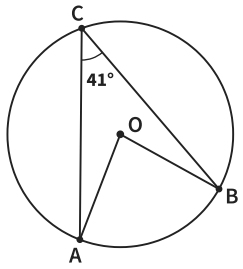
$x =$ 32°

Circle theorems: angle at the centre *further practice*

ANSWERS

9

O is the centre. Find angle AOB.



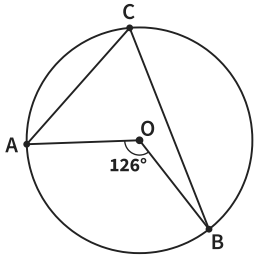
AOB = 2 × 41

The angle at the centre is twice the angle at the circumference.

Answer 82°

10

O is the centre. Find angle ACB.



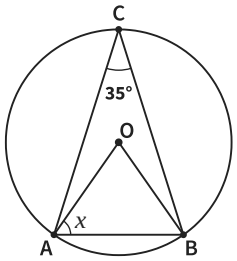
126 = 2 × ACB

The angle at the centre is twice the angle at the circumference.

Answer 63°

11

O is the centre. Find x.



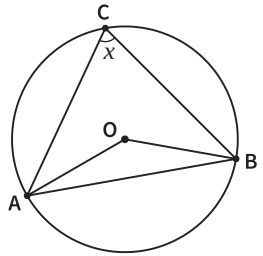
AOB = 2 × 35 = 70

(180 − 70) ÷ 2 = 55

Answer 55°

12

O is the centre. Angle OAB = 20°. Find x.



OBA = 20 (isosceles),
AOB = 180 − 40 = 140

140 = 2 × x

Answer 70°

13

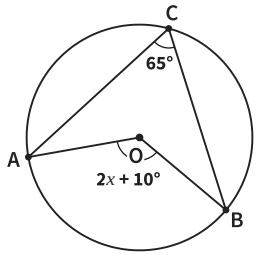
A round arena has a judge at its centre. A photographer on the edge of the arena sees two gates, also on the edge, 37° apart. How many degrees apart does the judge see the gates?

the judge is at the centre: 2 × 37

Answer 74°

14

O is the centre. Find x.



2x + 10 = 2 × 65 = 130

2x = 120

Answer 60

15

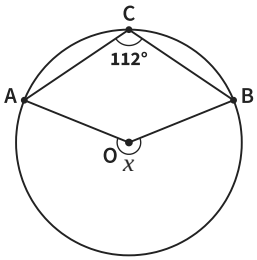
The angle at the circumference is a whole number of degrees.
Explain why the angle at the centre on the same arc is always even.

angle at the centre = 2 × angle at the circumference

So it is 2 × a whole number

16

O is the centre. Find the reflex angle x.



x = 2 × 112

Answer 224°