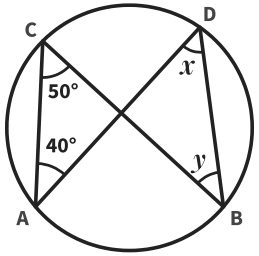
Circle Theorems: Angles in the Same Segment

ANSWERS

1 angles in the same segment are equal

Find x and y.

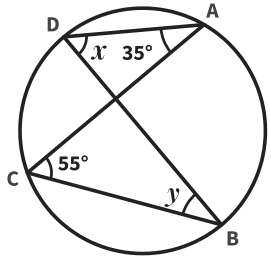


x = **50** ° same segment as angle C

y = 40 ° same segment as angle A

2

Find x and y.

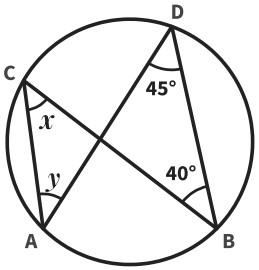


x = 55 ° same segment as angle C

y = 35 ° same segment as angle A

3

Find x and y.

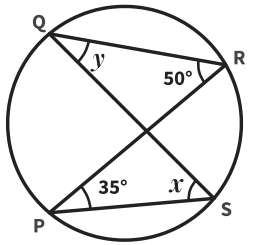


x = 45 ° same segment as angle D

y = 40 ° same segment as angle B

4

Find x and y. Give the reason.



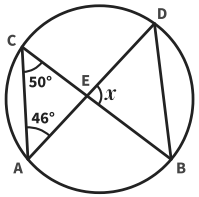
x = 50 °

y = 35 °

Reason: same segment

5 Notice the change!

Find x.



Angle ADB = 50 ° same segment as angle C

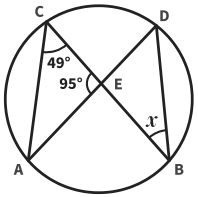
Angle DBC = 46 ° same segment as angle A

x = 180 − 50 − 46 (angles in a triangle)

x = 84 °

6

Find x. Give a reason for each step.



Angle ADB = 49 ° same segment

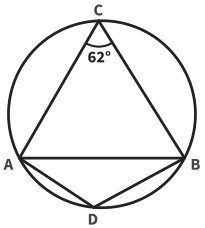
Angle DEB = 95 ° vertically opposite

x = 180 − 95 − 49 (triangle)

x = 36 °

7

Kofi says angle ADB = 62°, because angles in the same segment are equal.
Explain why Kofi is wrong.

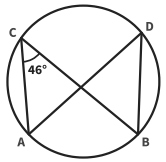


D is on the other side of AB,

in a different segment from C

8

Two cameras, C and D, are on the curved wall of a round room. Both film the doorway AB in the wall. Camera C needs a 46° view. What view does camera D need? Give a reason.



angles in the same segment are equal

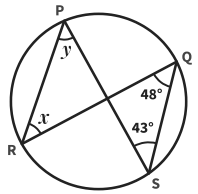
Camera D 46 °

Circle Theorems: Angles in the Same Segment *further practice*

ANSWERS

9

Find x and y. Give a reason for each.



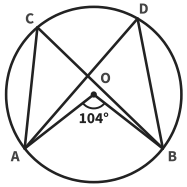
x = angle PSQ, y = angle SQR

(angles in the same segment are equal)

Answer $x = 43°, y = 48°$

10

O is the centre of the circle.
Find angle ACB and angle ADB.
Give reasons.



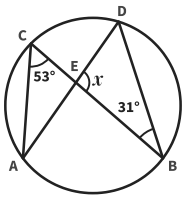
ACB = 104 ÷ 2 (angle at the centre)

ADB = ACB (same segment)

Answer 52° each

11

Chords AD and BC cross at E.
Find angle DEB, marked x. Give a reason for each step.



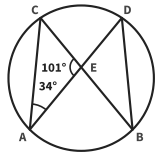
angle ADB = 53° (same segment)

x = 180 − 53 − 31 (triangle)

Answer $x = 96°$

12

Two straight stripes, AD and BC, cross a round rug from edge to edge and meet at E. Find angle ADB.



CBD = 34° (same segment)

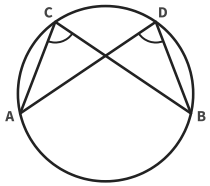
DEB = 101° (vertically opposite)

ADB = 180 − 101 − 34 (triangle)

Angle ADB 45°

13

Angle ACB = $(2x + 31)°$ and angle ADB = $(4x − 15)°$. Find x, then the size of angle ACB.



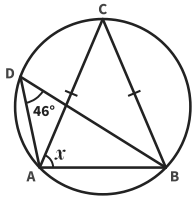
$2x + 31 = 4x − 15$ (same segment)

$46 = 2x$, so $x = 23$; $2 \times 23 + 31 = 77$

Answer $x = 23$, angle ACB = 77°

14

CA = CB. Find angle CAB, marked x.
Give a reason for each step.



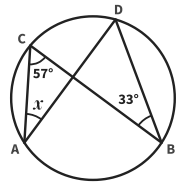
angle ACB = 46° (same segment as ADB)

x = (180 − 46) ÷ 2 (isosceles triangle)

Answer $x = 67°$

15

Mei says $x = 57°$ because angles in the same segment are equal.
Explain her mistake, then find x.



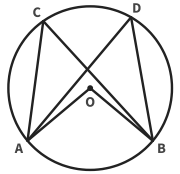
x stands on CD, 57° stands on AB

x = angle CBD (same segment)

Answer $x = 33°$

16

O is the centre. Use the angle at the centre to explain why angle ACB = angle ADB.



ACB = ½ AOB and ADB = ½ AOB

(angle at the centre is twice ...)

So both are half of AOB