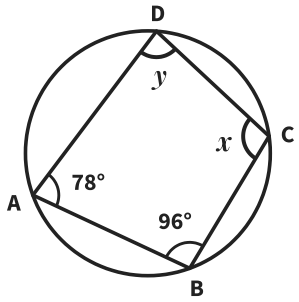
Circle theorems: cyclic quadrilaterals

1

ABCD is a cyclic quadrilateral.
Find x and y. Give a reason.



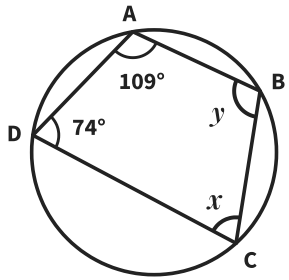
$x = 180° - 78° =$ ☐

$y = 180° - 96° =$ ☐

Reason: opposite angles in a cyclic quadrilateral add to 180°

2

ABCD is a cyclic quadrilateral.
Find x and y. Give a reason.



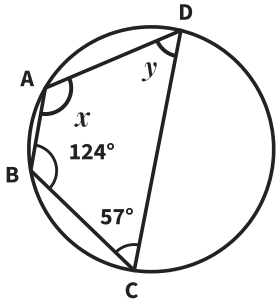
$x = 180° -$ ☐ = ☐

$y = 180° -$ ☐ = ☐

Reason:

3

ABCD is a cyclic quadrilateral.
Find x and y. Give a reason.



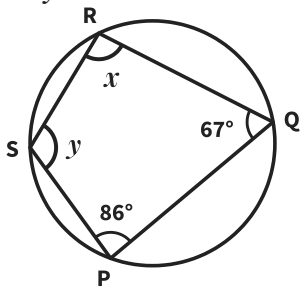
$x =$

$y =$

Reason:

4

PQRS is a cyclic quadrilateral.
Find x and y. Give a reason.

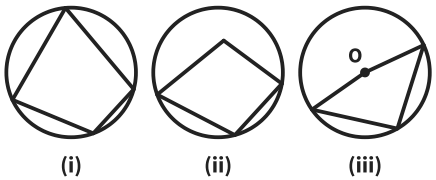


$x =$

$y =$

5 *Notice the change!*

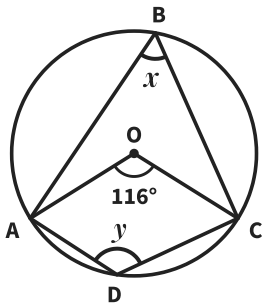
Which of these is a cyclic quadrilateral?
Explain why each of the others is not.



Cyclic:

6

O is the centre of the circle. Find x and y.
Give a reason for each.



$x =$

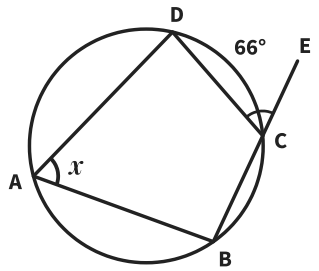
Reason:

$y =$

Reason:

7

ABCD is a cyclic quadrilateral.
BC is extended to E. Find angle BAD, marked x. Give a reason for each step.



Angle BCD =

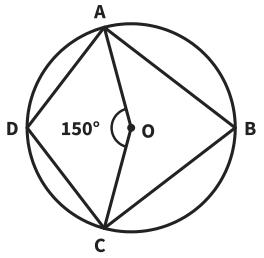
Reason:

$x =$

Reason:

8

O is the centre. Amara says angle
ADC = 180° − 150° = 30° (opposite angles).
Explain her mistake. Find angle ADC.

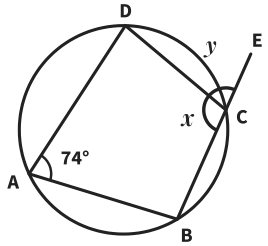


Angle ADC =

Circle theorems: cyclic quadrilaterals *further practice*

9

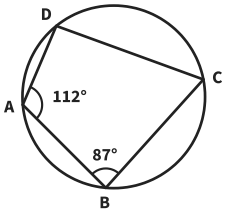
ABCD is a cyclic quadrilateral and BC is extended to E. Find x and y.
Give a reason for each.



Answer _____

10

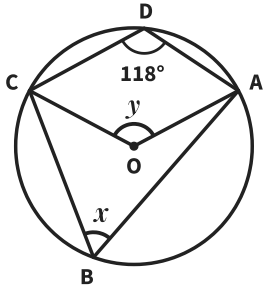
A garden bed has four straight edges. Its corners A, B, C and D are on a circular path. Angle A is 112° and angle B is 87°. Find angles C and D.



Answer _____

11

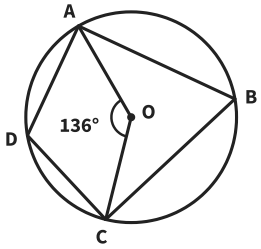
O is the centre of the circle.
Find x and y. Give a reason for each.



Answer _____

12

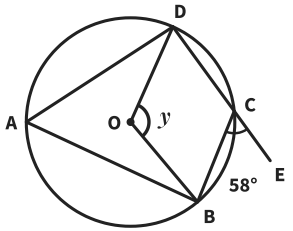
Four lamps A, B, C and D stand on the edge of a round fountain with centre O.
Angle AOC = 136°. Find angle ADC.



Angle ADC = _____

13

ABCD is cyclic, with centre O.
DC is extended to E. Find angle BOD, marked y, with reasons.



y = _____

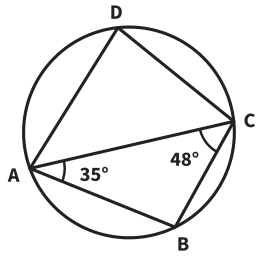
14

ABCD is a cyclic quadrilateral.
Angle BAD is twice the size of angle BCD. Find angle BCD.

Angle BCD = _____

15

ABCD is a cyclic quadrilateral.
Find angle ADC. Give a reason for each step.



Angle ADC = _____

16

Lena says, "If one angle of a cyclic quadrilateral is obtuse, the angle opposite it must be acute."
Is she right? Explain.

Answer _____