

Cyclic quadrilaterals

1 $m = 106^\circ$

2

- a 180°
- b No, because opposite angles are equal not supplementary.
- c Yes, because opposite angles are supplementary.

3 $d = 54^\circ$

4

- a $y = 36$ (Opposite angles in a cyclic quadrilateral are supplementary)
- b $p = 79$ (An exterior angle of a cyclic quadrilateral is equal to the angle that is interior and opposite to it)
- c $x = 69$ (Angles forming a straight line are supplementary (sum to 180°))
- d $n = 87$ (An exterior angle of a cyclic quadrilateral is equal to the angle that is interior and opposite to it)

5 $y = 77$

6

- a $x = 108^\circ$
- b $y = 70^\circ$

7

- a $\angle AOC = 186^\circ$
- b $\angle ABC = 93^\circ$
- c No, because opposite angles are not supplementary so it is not a cyclic quadrilateral.

8

- a $m = 82^\circ$ (Angle at the centre of a circle is twice the angle at its circumference)
- b $n = 82^\circ$

9

- a $p = 90^\circ$ (The angle in a semicircle is a right angle)
- b $q = 63^\circ$ (The interior angle sum of a triangle is 180°)
- c $r = 117^\circ$ (Opposite angles in a cyclic quadrilateral are supplementary)

10

- a $p = 112^\circ$ The exterior angle of a cyclic quadrilateral is equal to the opposite interior angle.
- b $q = 68^\circ$ (Opposite angles in a cyclic quadrilateral are supplementary)

11 $m = 97^\circ$ (m is the opposite exterior angle to $\angle DAB$)

12 $\angle BAD = 98^\circ$

13 $m = 69$ (Opposite angles in a cyclic quadrilateral are supplementary)

14 $\angle BAF = 86$

Proofs

15 No solution provided.

16 No solution provided.

17 No solution provided.

18 No solution provided.

19 No solution provided.

20

- a No solution provided.
- b No solution provided.
- c No solution provided.