

Circle Theorems: Angles in a cyclic quadrilateral

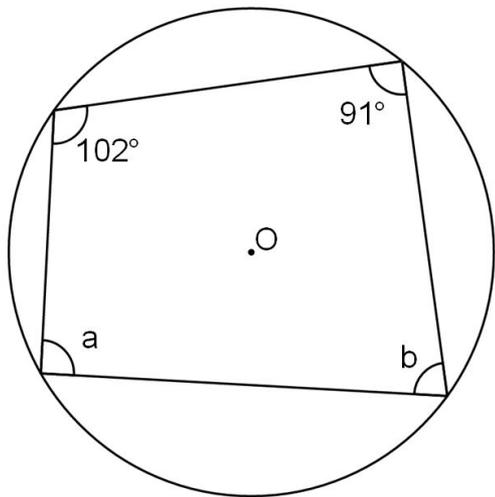
Maths

Mr Chan



Circle Theorems: Angles in a cyclic quadrilateral

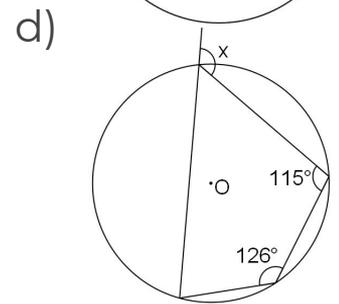
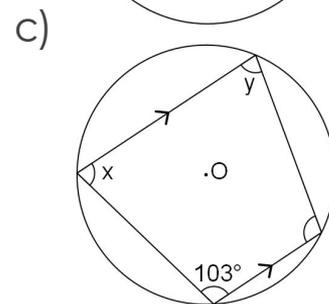
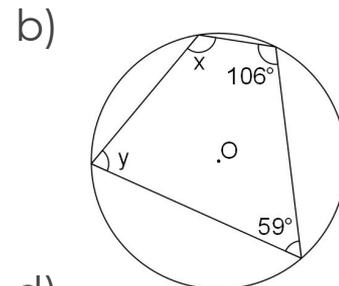
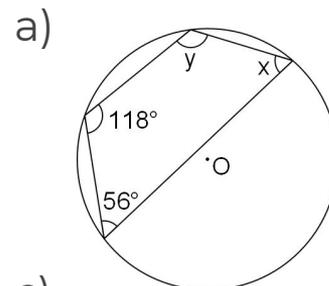
1. Work out the size of each angle marked with a letter.



Give a reason for your answers.

2. Work out the size of each angle marked with a letter.

Give a reason for your answers.

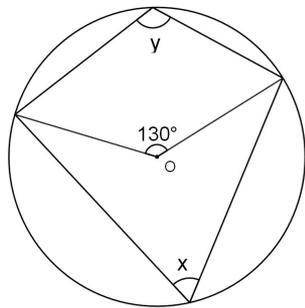


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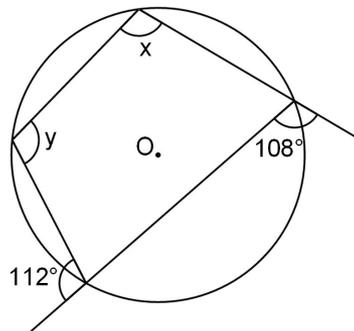
3. Work out the size of each angle marked with a letter.

Give a reason for your answers.

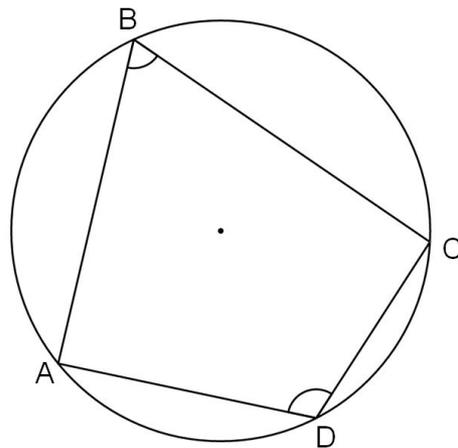
a)



b)



4. Prove that opposite angles in a cyclic quadrilateral add up to 180° .

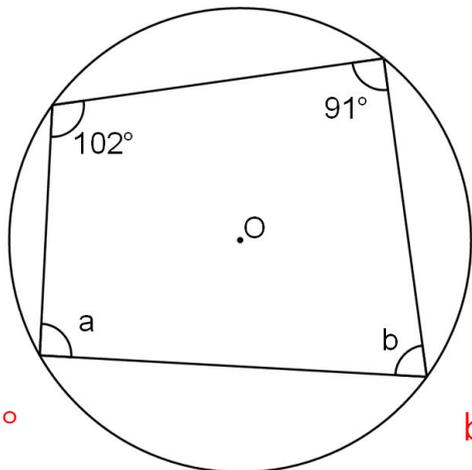


Answers



Circle Theorems: Angles in a cyclic quadrilateral

1. Work out the size of each angle marked with a letter.



$$a = 89^\circ$$

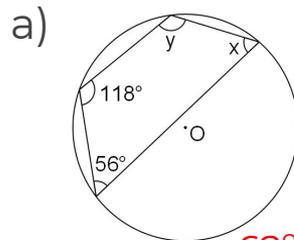
$$b = 78^\circ$$

Give a reason for your answers.

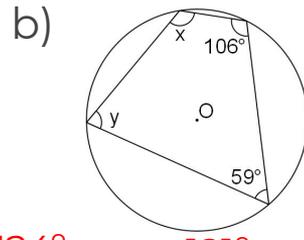
Opposite angles in a cyclic quadrilateral add up to 180°

2. Work out the size of each angle marked with a letter.

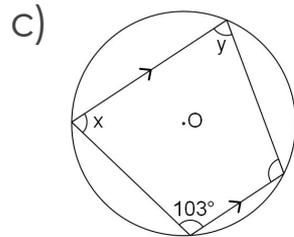
Give a reason for your answers.



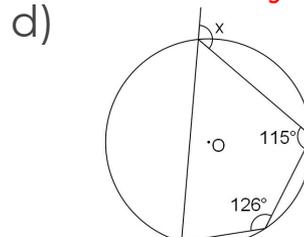
$$x = 62^\circ \quad y = 124^\circ$$



$$x = 121^\circ \quad y = 174^\circ$$



$$x = 77^\circ \quad y = 77^\circ$$



$$x = 126^\circ$$

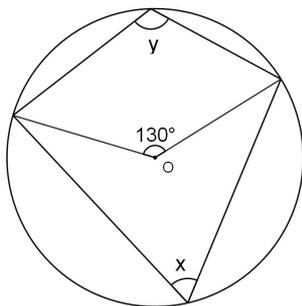


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3. Work out the size of each angle marked with a letter.

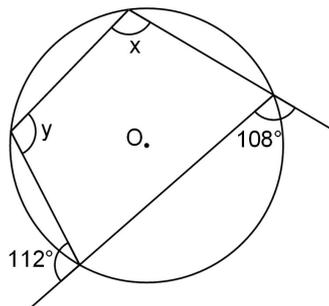
Give a reason for your answers.

a)



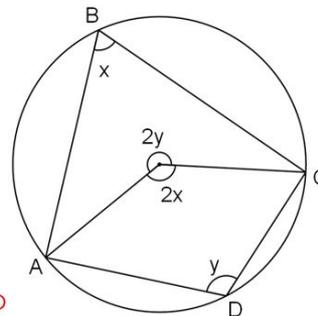
$$x = 65^\circ \quad y = 115^\circ$$

b)



$$x = 112^\circ \quad y = 108^\circ$$

4. Prove that opposite angles in a cyclic quadrilateral add up to 180° .



Circle has centre O

Let angle CBA = x and angle CDA = y

angle COA = $2x$ (angle at the centre is twice the angle at the circumference)

angle AOC = $2y$ (angle at the centre is twice the angle at the circumference)

$2x + 2y = 360$ (angles around a point add up to 360°)

$2(x + y) = 360$

$x + y = 180$

