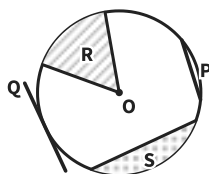


1 Parts of a circle

- a) Name the parts labelled P, Q, R and S.
- b) A chord goes through the centre O. What is it called? How does its length compare with the radius?

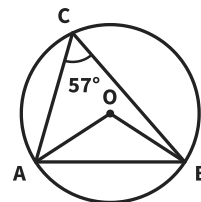


- a) P chord, Q tangent, R sector, S segment
- b) a diameter, twice the radius

2 Angle at the centre

O is the centre of the circle. Give a reason for each answer.

- a) Find angle AOB.
- b) Find angle OAB.



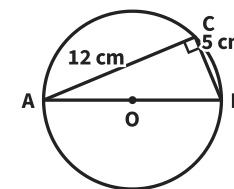
Not drawn accurately

- a) $2 \times 57 = 114^\circ$, the angle at the centre is twice the angle at the circumference
- b) $(180 - 114) \div 2 = 33^\circ$, $OA = OB$ (radii)

3 Angle in a semicircle

AB is a diameter of the circle, centre O.

- a) Find the radius of the circle.
- b) Find angle ABC to 1 decimal place.



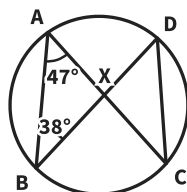
Not drawn accurately

- a) angle $ACB = 90^\circ$, $AB = \sqrt{(12^2 + 5^2)} = 13$, radius 6.5 cm
- b) $\tan^{-1}(12 \div 5) = 67.4^\circ$

4 Angles in the same segment

The chords AC and BD cross at X. Give a reason for each answer.

- a) Find angle ACD.
- b) Find angle CXD.



Not drawn accurately

- a) 38° , angles in the same segment are equal
angle $BDC = 47^\circ$ (same segment)
- b) $180 - 38 - 47 = 95^\circ$, angles in a triangle

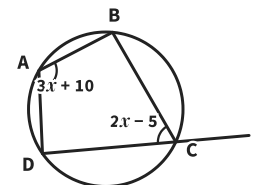
Circle geometry revision mat answers

Higher A

5 Cyclic quadrilaterals

ABCD is a cyclic quadrilateral. DC is extended to E.

- a) Find the value of x .
- b) Find angle BCE. Give a reason.



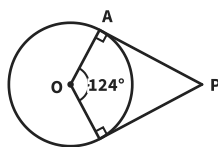
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- a) $5x + 5 = 180$ (opposite angles), $x = 35$
- b) $180 - 65 = 115^\circ$ (angles on a straight line)

6 Tangents

PA and PB are tangents to the circle, centre O.

- a) Find angle APB. Give reasons.
- b) Another circle has radius 6 cm. A tangent from Q is 8 cm long. How far is Q from the centre?



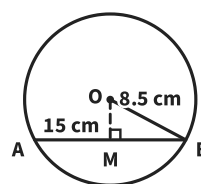
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- a) $360 - 90 - 90 - 124 = 56^\circ$ (tangent $\perp$ radius)
- b) $\sqrt{6^2 + 8^2} = 10$ cm

7 Chords

O is the centre of the circle.

- a) Find OM, the distance from O to the chord AB.
- b) Another chord, CD, is 3.6 cm from O. How long is CD?



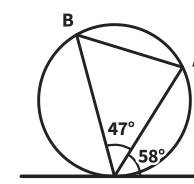
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- a) $MB = 7.5$, $OM = \sqrt{(8.5^2 - 7.5^2)} = 4$ cm
- b) $CD = 2\sqrt{(8.5^2 - 3.6^2)} = 2 \times 7.7 = 15.4$ cm

8 Alternate segment

The straight line is a tangent to the circle at T. Give a reason for each answer.

- a) Find angle TBA.
- b) Find angle TAB.



Not drawn accurately

- a) 58° , the alternate segment theorem
- b) $180 - 58 - 47 = 75^\circ$, angles in a triangle