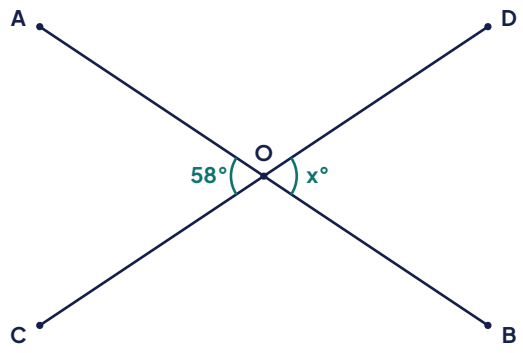
Geometry: IGCSE Maths worksheet

Name	Date	Time allowed **45 minutes**	Total **32 marks**
_____	_____		

Instructions
Answer all questions. Show your working clearly: marks are given for each correct step. Write your answers in the spaces provided.

1 In the diagram, lines AB and CD are straight lines crossing at point O. Angle AOC = 58°. **[2]**

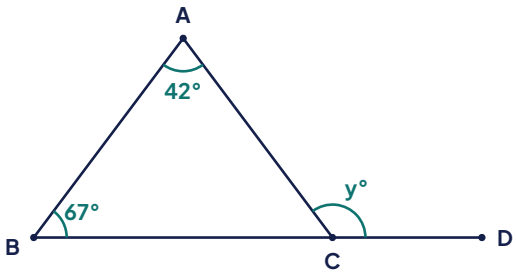
Find angle BOD, giving a reason for your answer.



2 The diagram shows a triangle ABC with angle A = 42° and angle B = 67°. The side BC is extended to point D, forming an exterior angle at C. **[4]**

(a) Find angle ACB.

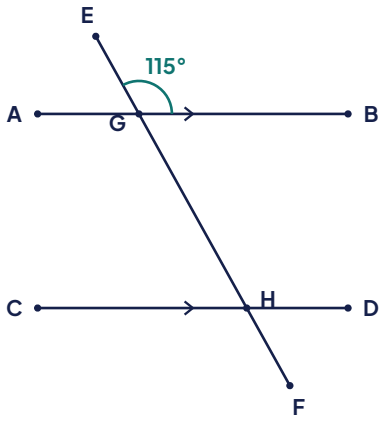
(b) Find the exterior angle ACD, giving a reason for your answer.



3 Lines AB and CD are parallel. A transversal line EF crosses AB at point G and crosses CD at point H. Angle EGB = 115°. **[4]**

(a) Find angle GHD, giving a reason.

(b) Find angle GHC, giving a reason.



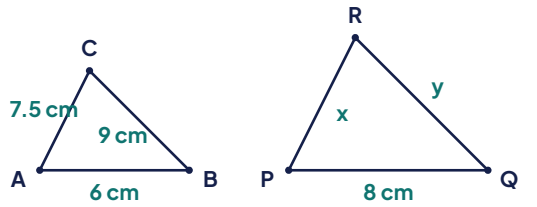
4 Triangles ABC and PQR are similar, with angle A = angle P, angle B = angle Q, and angle C = angle R. **[4]**

AB = 6 cm, BC = 9 cm, AC = 7.5 cm, and PQ = 8 cm.

(a) Find the scale factor from triangle ABC to triangle PQR.

(b) Find the length QR.

(c) Find the length PR.



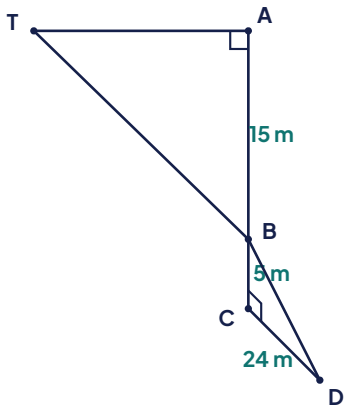
Not drawn to scale

5 Nadia wants to find the width of a river. She stands at point A on one bank and sights a tree T directly across the river. She then walks along the bank to point B, 15 m from A, and then to point C, 5 m further along the same line from B. From C, she walks away from the river until point D is in line with B and T. CD is measured as 24 m. **[4]**

Triangle ABT and triangle CBD are similar (angle A = angle C = 90°, and angle ABT = angle CBD as vertically opposite angles).

AB = 15 m, BC = 5 m, CD = 24 m.

(a) Explain why triangle ABT is similar to triangle CBD.
(b) Find the width of the river, AT.



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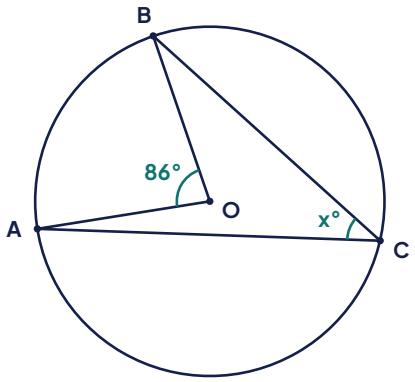
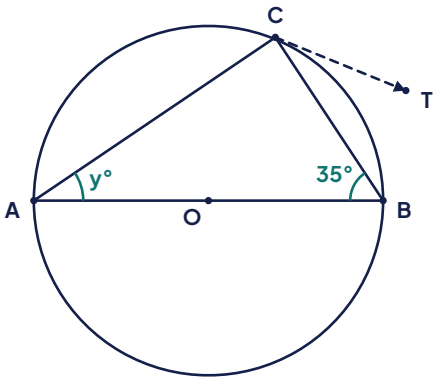
6 In the diagram, O is the centre of the circle. Points A and B lie on the circle, and angle AOB = 86°. Point C also lies on the circle, on the major arc AB. [2]

Find angle ACB, the angle at the circumference subtended by the same arc AB.



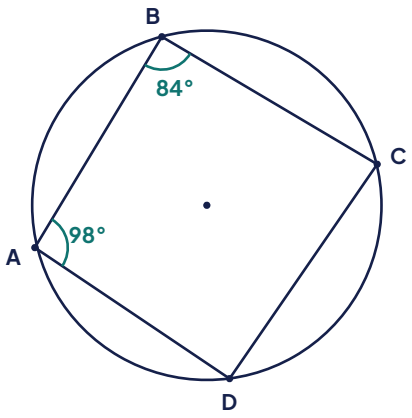
7 In the diagram, O is the centre of the circle. AB is a diameter. C is a point on the circle, and angle ABC = 35°. TC is a tangent to the circle at point C. **[6]**

(a) Find angle ACB, giving a reason.
(b) Find angle BAC.
(c) Find angle BCT, the angle between the chord BC and the tangent at C, giving a reason.



8 In the diagram, ABCD is a cyclic quadrilateral. O is the centre of the circle. Angle DAB = 98° and angle ABC = 84°. **[6]**

(a) Find angle BCD, giving a reason.
(b) Find angle ADC, giving a reason.
(c) Explain, using circle theorems, why opposite angles of a cyclic quadrilateral must sum to 180°. (A brief explanation using arcs or angle at centre/circumference is sufficient.)



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