HIGHER ONLY

HIGHER TIER

Name ..... Class .....

G10: Circle theorems

Solve problems by combining circle theorems

20 marks · 25 minutes · Non-calculator

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1) *A*, *B* and *C* lie on a circle with centre *O*. Angle *OAB* = 25°. *C* is on the major arc. Find angle *ACB*.

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[Question 1: 3 marks]

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2) $ABCD$ is a cyclic quadrilateral. Angle $A = (2x + 10)°$ and angle $C = (3x - 5)°$. Find both angles.

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[Question 2: 3 marks]

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3) Tangents from T touch a circle with centre O at A and B. Angle $AOB = 110°$. C is on the major arc. Find angles ACB and ATB.

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[Question 3: 4 marks]

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4) AB is a diameter of length 10 cm. C is on the circle and AC = 6 cm. Find the area of triangle ABC.

..... cm^2

[Question 4: 3 marks]

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5) A tangent touches a circle at A. The angle between the tangent and chord AB is 70°. C is on the circle in the other segment and angle ABC = 60°. Find angle BAC.

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[Question 5: 3 marks]

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6) Chord AB makes an angle of 120° at the centre of a circle of radius 6 cm. Find the exact length of AB.

..... cm

[Question 6: 2 marks]

7) AC is a diameter and B is on the circle. Angle BAC = 48°. Find angle BCA.

..... °

[Question 7: 2 marks]

End of paper – 20 marks in total

Answers and brief mark scheme

Q	Answer	Method / notes
1	65	Triangle OAB isosceles, $AOB = 130$ (P1, P1); half (A1).
2	80 and 100	$5x + 5 = 180$ (P1); $x = 35$ (P1); A1.
3	55 and 70	$ACB = 55$ (P1, A1); $OAT = OBT = 90$ (P1); $ATB = 70$ (A1).
4	24	Angle $C = 90°$ (P1); $BC = 8$ (P1); A1.
5	50	Alternate segment: $ACB = 70$ (P1, P1); $180 - 130$ (A1).
6	$6\sqrt{3}$	Split into two 30-60-90 triangles (P1); A1.
7	42	Angle $ABC = 90$ (P1); A1.