Circle Geometry: The Theorems, With Examples

MEMORANDUM

Name: ..... Class: .....

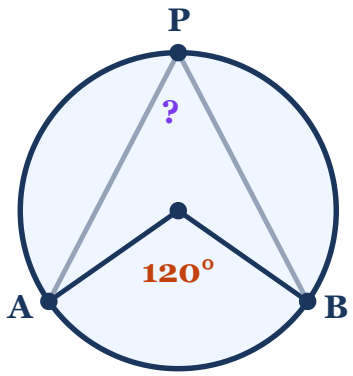
Date: .....

MARK ____ / 15

Answer all questions. Show all your working — marks are awarded for method as well as the final answer. **Teacher copy: accept any correct equivalent method.**

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1 Arc subtends 120° at the centre. Angle at the circumference? *(centre/circ)* (2)

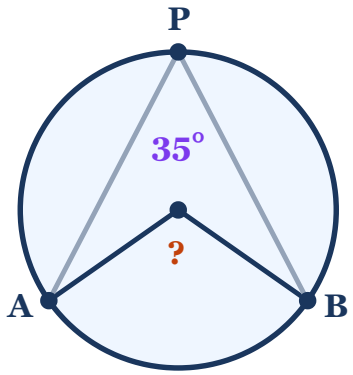


O is the centre

120° ÷ 2 = **60°** ✓✓ (2)

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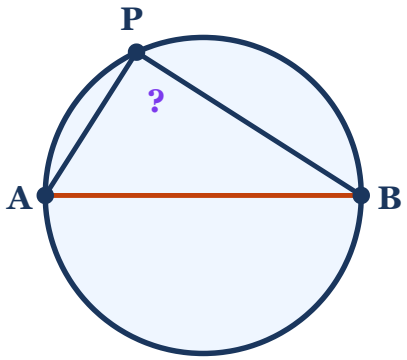
2 Angle at the circumference is 35°. Angle at the centre (same arc)? *(centre/circ)* (2)



O is the centre

2 × 35° = **70°** ✓✓ (2)

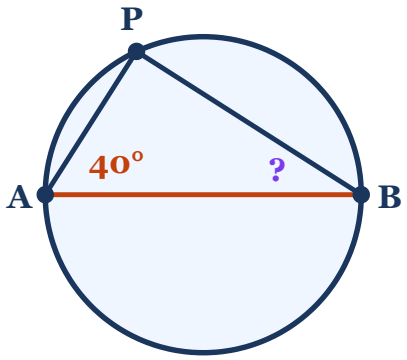
3 AB is a diameter, P on the circle. What is $A\hat{P}B$? *(semicircle)* (1)



AB is a diameter

90° (angle in a semicircle) ✓ (1)

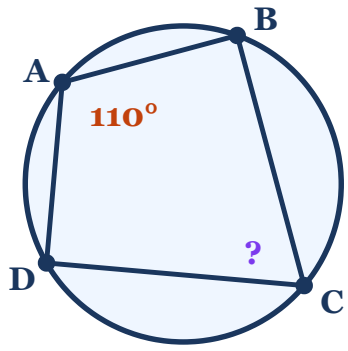
4 In a semicircle, $P\hat{A}B = 40°$. Find $A\hat{B}P$. *(semicircle)* (2)



AB is a diameter

$180° - 90° - 40° = \mathbf{50°}$ ✓✓ (2)

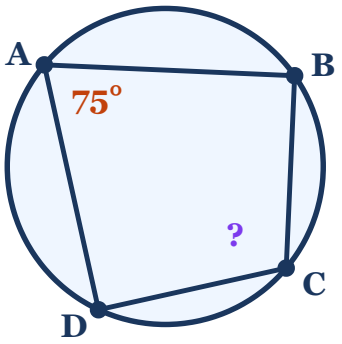
5 Cyclic quad angle is 110°. Opposite angle? *(cyclic quad)* (1)



ABCD is a cyclic quadrilateral

$180° - 110° = \mathbf{70°}$ ✓ (1)

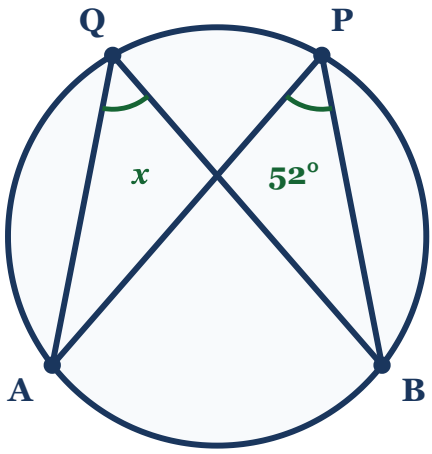
6 Cyclic quad angle is $75°$. Opposite angle? *(cyclic quad)* (1)



ABCD is a cyclic quadrilateral

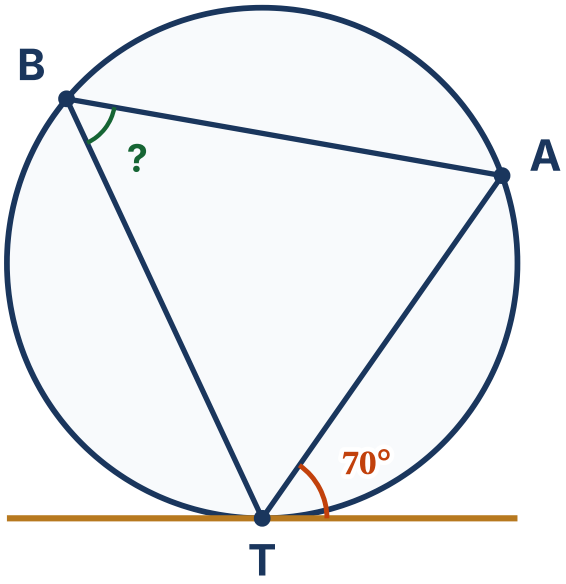
$180° - 75° = \mathbf{105°}$ ✓ (1)

7 Two angles stand on the same arc; one is $52°$. The other? *(same segment)* (1)



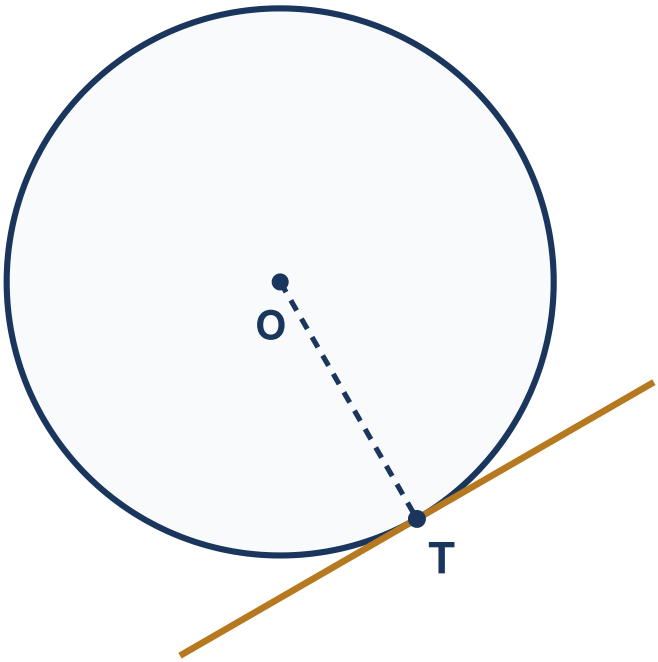
52° (equal) ✓ (1)

8 Tangent–chord angle is 70°. Angle in the alternate segment? *(tan–chord)* (2)



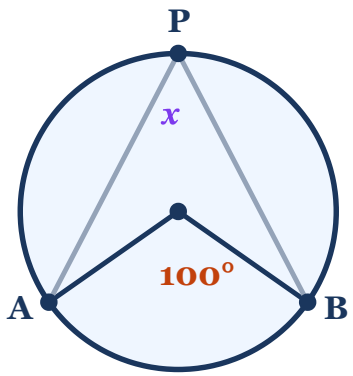
70° ✓✓ (2)

9 A tangent meets a radius at the point of contact. What is the angle? *(tan–radius)* (1)



90° (tan ⊥ radius) ✓ (1)

10 Angle at centre $= 2x$ and equals $100°$. Find x, the angle at the circumference. *(solve)* **(2)**



O is the centre

$2x = 100 \rightarrow x = \mathbf{50°}$ ✓✓ (2)

TOTAL: 15 marks

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