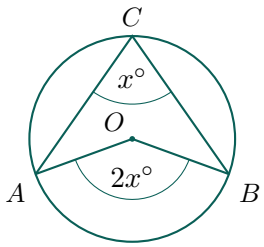
Circle Theorems

GCSE Mathematics • **Higher Tier** • Grades 8–9 • Non-calculator

Name: _____ Class: _____ Total: _____ / 55

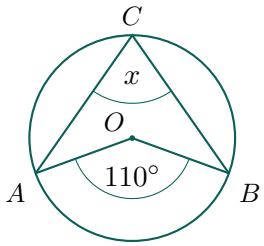
Show all your working. Marks are given for correct method as well as the final answer.

1. The diagram shows an angle at the centre and an angle at the circumference on the same arc. State the theorem that connects them. **[2 marks]**



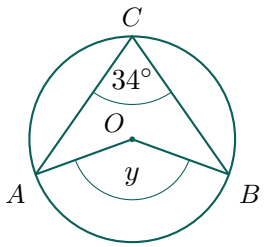
Answer: _____

2. Find x, giving a reason. **[3 marks]**



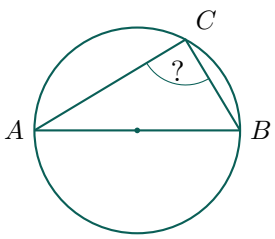
Answer: _____

3. Find y, the angle at the centre. **[2 marks]**



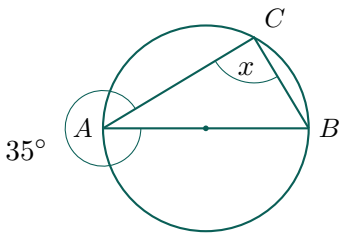
Answer: _____

4. AB is a diameter. Write down the size of angle ACB, and name the theorem. **[2 marks]**



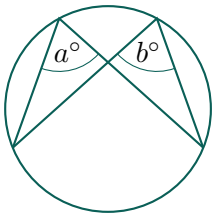
Answer: _____

5. AB is a diameter. Work out angle x. **[3 marks]**



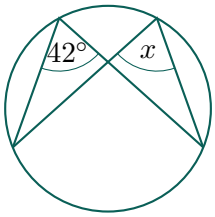
Answer: _____

6. The two marked angles stand on the same arc. State the theorem that connects them. **[2 marks]**



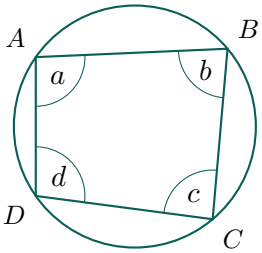
Answer: _____

7. Write down the size of x, giving a reason. **[2 marks]**



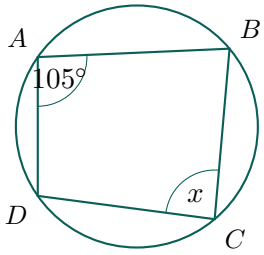
Answer: _____

8. All four vertices lie on the circle. State the theorem about its opposite angles. **[2 marks]**



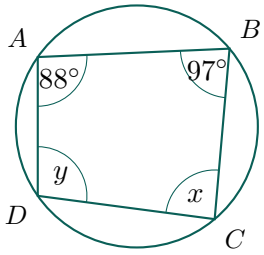
Answer: _____

9. Work out x. **[2 marks]**



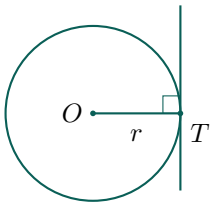
Answer: _____

10. Work out x and y. **[3 marks]**



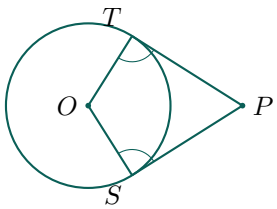
Answer: _____

11. OT is a radius and the line through T is a tangent. Write down the angle at T, with a reason. **[2 marks]**



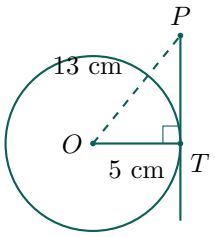
Answer: _____

12. Two tangents are drawn to the circle from the point P. What can you say about their lengths? **[2 marks]**



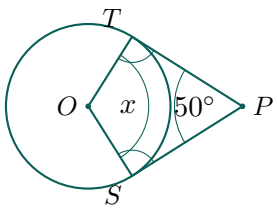
Answer: _____

13. OT is a radius and PT is a tangent. Work out the length PT. **[4 marks]**



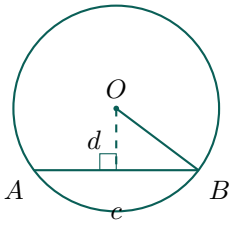
Answer: _____ **cm**

14. Two tangents meet at P, where angle $P = 50°$. Work out the angle at the centre between the two radii. **[4 marks]**



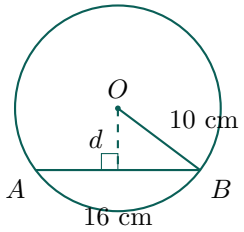
Answer: _____

15. O is the centre and the dashed line is perpendicular to the chord. State what it does to the chord. **[2 marks]**



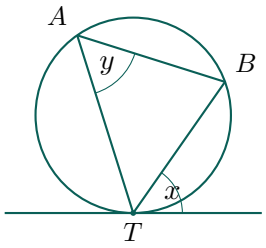
Answer: _____

16. Work out d, the distance of the chord from the centre. **[4 marks]**



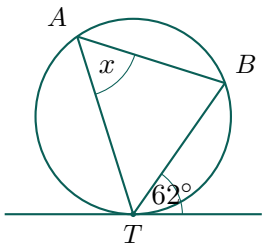
Answer: _____ **cm**

17. State the alternate segment theorem, using the angles marked on the diagram. **[2 marks]**



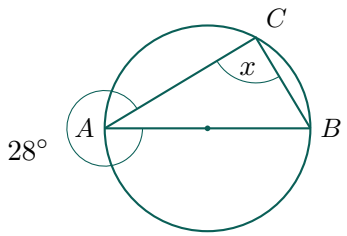
Answer: _____

18. Work out x. **[2 marks]**



Answer: _____

19. AB is a diameter and angle $CAB = 28°$.

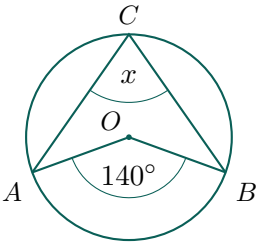


(a) Write down angle ACB, with a reason. **[2 marks]**

(b) Work out angle x. **[3 marks]**

Answer: _____

20. O is the centre and the angle at the centre is 140°.



(a) Work out x, the angle at the circumference. **[2 marks]**

(b) A cyclic quadrilateral is drawn using that angle. Work out the angle opposite it. **[3 marks]**

Answer: _____

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