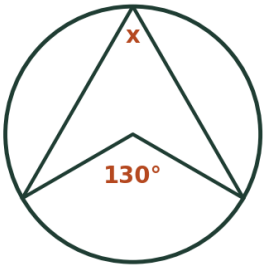
Circle Theorems

Grade 6 topic · Higher tier · Edexcel and AQA

How to use this pack
20 questions that get harder as you go. Questions 1–15 (42 marks) build up to the harder Grade 8–9 style questions at the end; aim to complete all 20. Show your working on the lines and write your final answer on the answer line, then mark yourself with the answers at the back. Diagrams are not drawn accurately. Total: 65 marks.

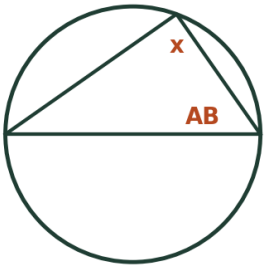
Warm-up

1 O is the centre of the circle. Work out the size of angle x. Give a reason. **[3 marks]**



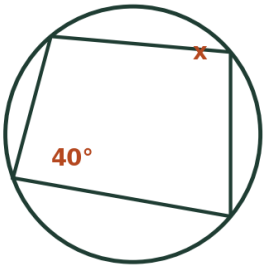
Answer _____

2 AB is a diameter of the circle. Work out the size of angle x. Give a reason. **[2 marks]**



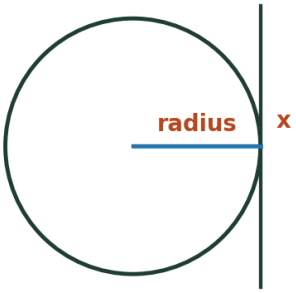
Answer _____

3 ABCD is a cyclic quadrilateral. Work out the size of angle x. Give a reason. **[3 marks]**



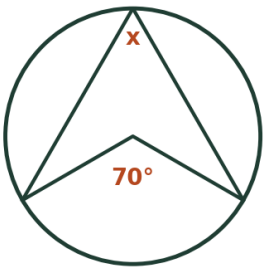
Answer _____

4 The tangent meets the radius at the point of contact. Write down the size of angle x and give a reason. **[2 marks]**



Answer _____

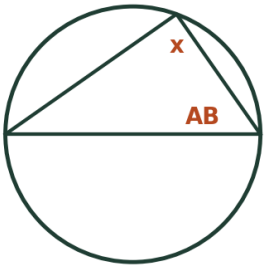
5 O is the centre of the circle. Work out the size of angle x. Give a reason. **[3 marks]**



Answer _____

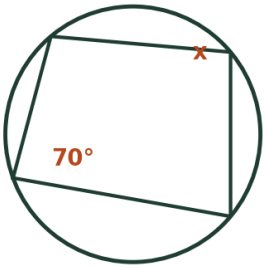
Core

6 AB is a diameter of the circle. Work out the size of angle x. Give a reason. **[2 marks]**



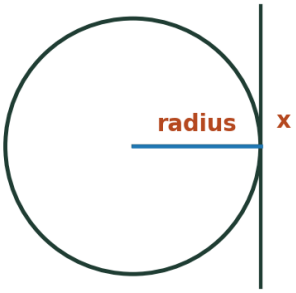
Answer _____

7 ABCD is a cyclic quadrilateral. Work out the size of angle x. Give a reason. **[3 marks]**



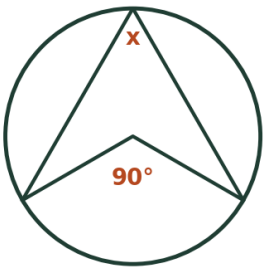
Answer _____

8 The tangent meets the radius at the point of contact. Write down the size of angle x and give a reason. **[2 marks]**



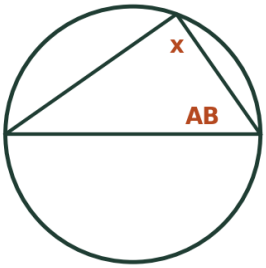
Answer _____

9 O is the centre of the circle. Work out the size of angle x. Give a reason. **[3 marks]**



Answer _____

10 AB is a diameter of the circle. Work out the size of angle x. Give a reason. **[2 marks]**



Answer _____

Stretch

11 Angle at the centre of a circle is 70° and stands on arc AB. Work out the angle at the circumference standing on the same arc. **[4 marks]**

Answer _____

12 Two angles in the same segment stand on the same arc. One is 60°. Work out the other. **[3 marks]**

Answer _____

13 In a cyclic quadrilateral one angle is 40°. Work out the opposite angle. **[3 marks]**

Answer _____

14 Two tangents are drawn from an external point P to a circle touching it at A and B. PA = 15 cm. Write down PB. **[3 marks]**

Answer _____

15 Triangle OAB has O at the centre and A, B on the circle. Angle AOB = 50°. **[4 marks]**
Work out angle OAB.

Answer _____

Challenge

16 A tangent at A meets the line through the centre O at P. Angle APO = 35°. **[5 marks]**
Work out angle AOP.

Answer _____

17 In a cyclic quadrilateral ABCD angle ABC = 50° and angle BCD = 40°. Work out angles ADC and BAD. **[5 marks]**

Answer _____

18 Angle at the centre is 120°. Work out the angle in the major segment, then the angle in the minor segment. **[5 marks]**

Answer _____

19 State the alternate segment theorem. **[4 marks]**

Answer _____

20 The angle at the centre of a circle is 100°. Work out the angle at the circumference on the same arc. **[4 marks]**

Answer _____