

Surname	
Other Names	
Candidate's Signature	

GCSE 9 - 1 Questions

Circle Theorems 2

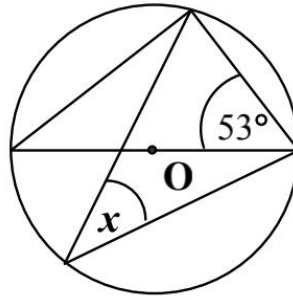
Calculator Allowed

INSTRUCTIONS TO CANDIDATES

- Write your name in the space provided.
- Write your answers in the spaces provided in this question paper.
- Answer ALL questions.
- Any working should be clearly shown in the spaces provided since marks may be awarded for partially correct solutions.
- You should have a ruler, compass and protractor where required.

Total Marks :

- 1) O is the centre of the circle.
Find the value of x .



Answer ° [2]

- 2) This is a circle with centre O. What is the value of angle y ?

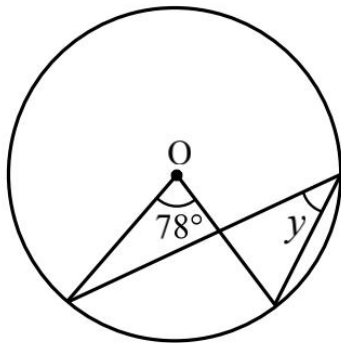
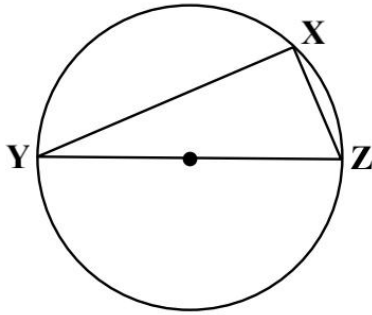


Diagram NOT drawn to scale

Answer ° [2]

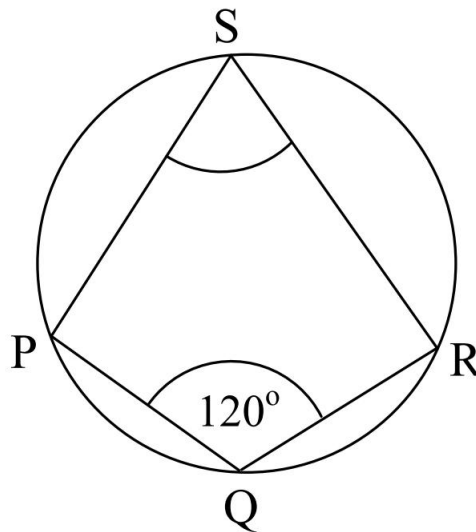
3)



YZ is a diameter of the circle.
What type of triangle is XYZ?

Answer [1]

4) In the diagram below, what is the size of the angle PSR?



Answer ° [2]

5) Work out the value of $\angle STR$.

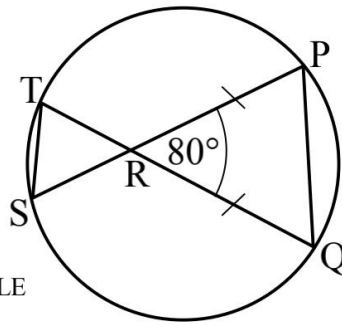
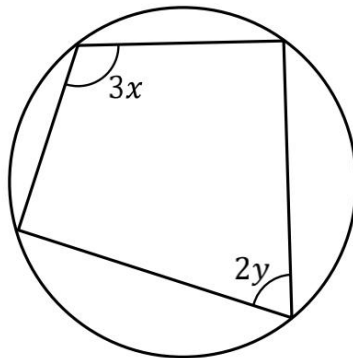


DIAGRAM NOT DRAWN TO SCALE

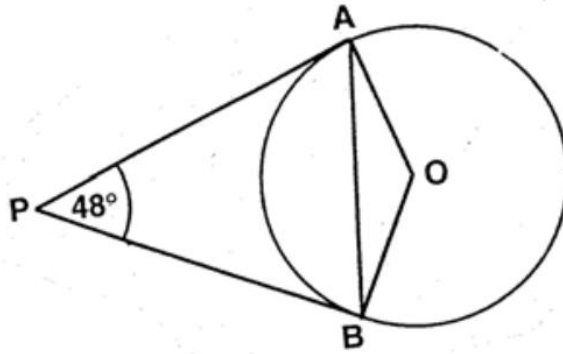
Answer° [2]

6) A quadrilateral is inscribed in a circle. Write down an expression for y in terms of x



Answer y =..... [2]

- 7) PA and PB are tangents from the point P to the circle with centre O. If angle APB=48°, find:



- a) i. Angle PAB

Answer° [2]

- ii. Angle BAO

Answer° [2]

- b) AC is a tangent to circle centre O. In ΔAOC , angles x and y are in the ratio 1 : 2. Work out the value of angle z .

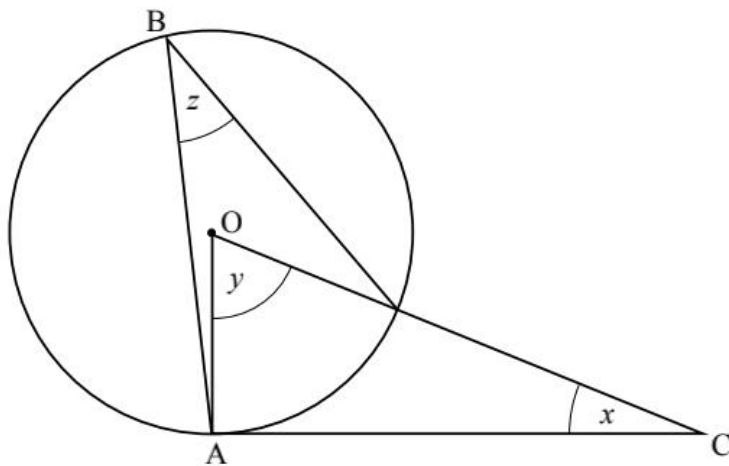
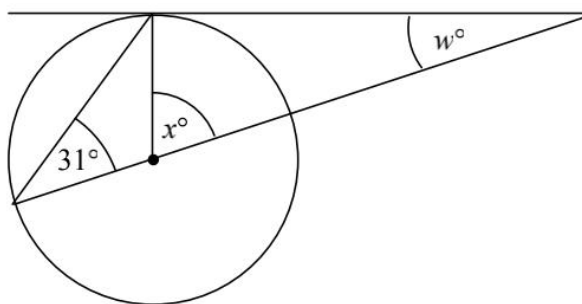


DIAGRAM NOT DRAWN TO SCALE

Ans: $z =$ _____ °

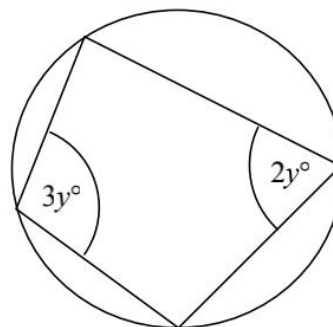
[2]

8) (i) Work out the values of w and x .



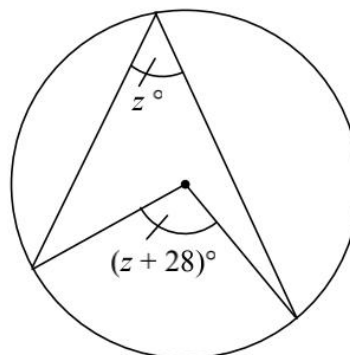
$w =$ _____, $x =$ _____

(ii) Work out the value of y .



$y =$ _____

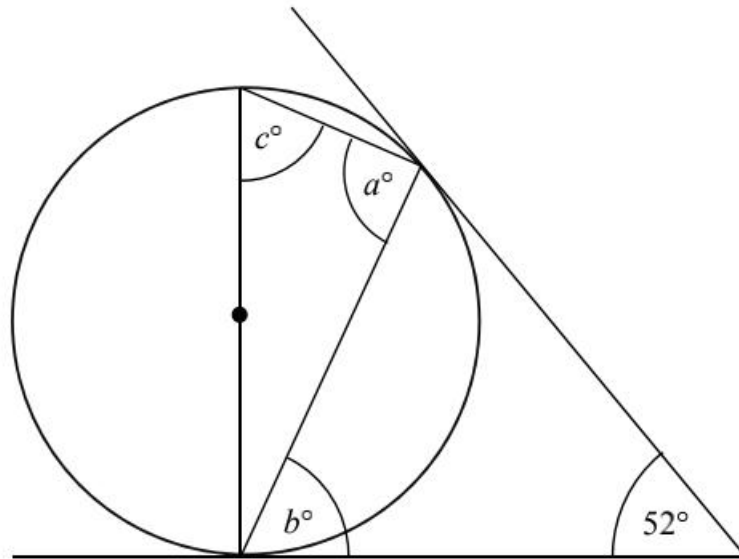
(iii) Work out the value of z .



$z =$ _____

8 marks

9) (i) Explain why $a = 90$.

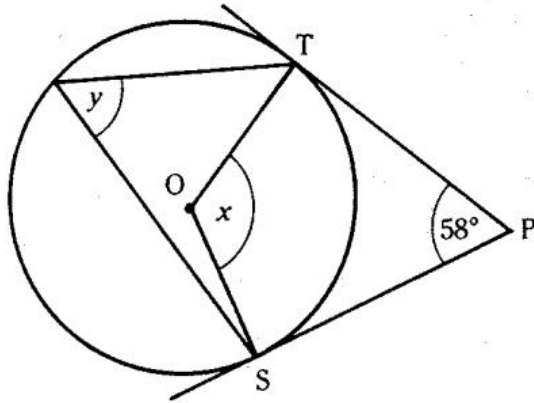


(ii) Work out the size of angles b and c .

Angle b is° [2]

Angle c is° [2]

- 10) In the diagram below, PS and PT are tangents to the circle with centre O. Angle TPS, between the two tangents, is 58° .



- a) What is the size of the angle OTP?

Answer $^\circ$ [2]

- b) Calculate the size of angle x .

Answer $^\circ$ [2]

- c) Calculate angle y .

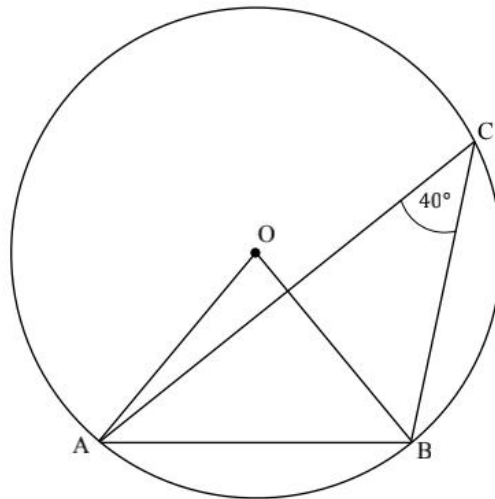
Answer $^\circ$ [2]

- d) Calculate angle PTS.

Answer $^\circ$ [2]

11) The figure below shows triangle ABC inscribed in a circle centre O.

BO and AO are radii drawn to form triangle ABO.



a) Work out the angle AOB.

Answer° [2]

b) What type of triangle is BOA?

Answer [1]

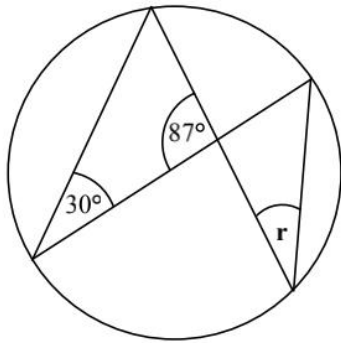
c) Work out the angle ABO

Answer° [2]

12) Find the angles marked **r**, **s** and **t** in the diagrams below. Give **reasons** for your answers.

Note: Diagrams are not drawn to scale.

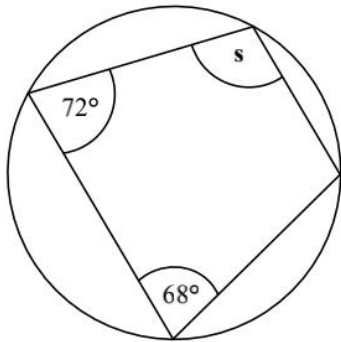
(a)



$$r = \text{_____}^\circ$$

Reason: _____

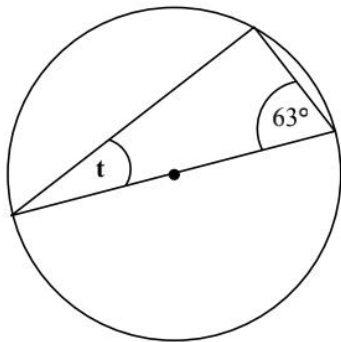
(b)



$$s = \text{_____}^\circ$$

Reason: _____

(c)

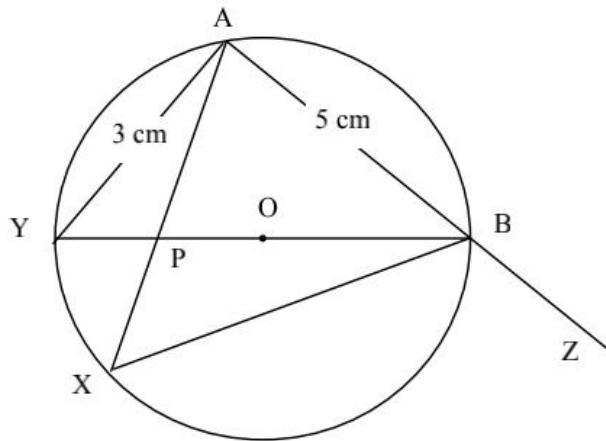


$$t = \text{_____}^\circ$$

Reason: _____

(6 marks)

13) The circle shown has a centre O.



a) State, giving reasons, the value of angle BAY.

Answer°

Reason [2]

b) Calculate the angle BYA to the nearest degree.

Answer° [2]

c) State the size of angle BXA, giving reasons.

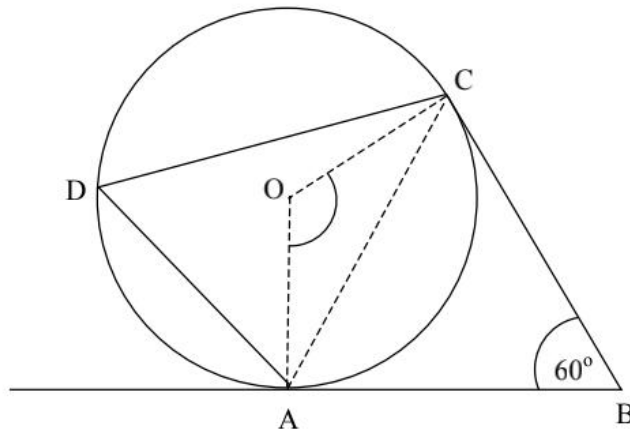
Answer°

Reason [2]

d) Calculate the radius of the circle.

Answercm [2]

- 14) AB and BC are two tangents drawn to a circle centre O as shown in the figure. Angle ABC is 60° .



- a) Work out the size of:
- (i) the marked angle AOC
 - (ii) angle ACO.
- b) If the radius of the circle is 10 cm, work out the length of the **minor arc AC**. Give your answer correct to 1 decimal place.
- c) What is the **ratio** of the length of the **minor arc AC** to the **circumference** of the circle? Give your answer in the form of $1 : n$.
- d) What is the size of angle ADC?

(6 marks)