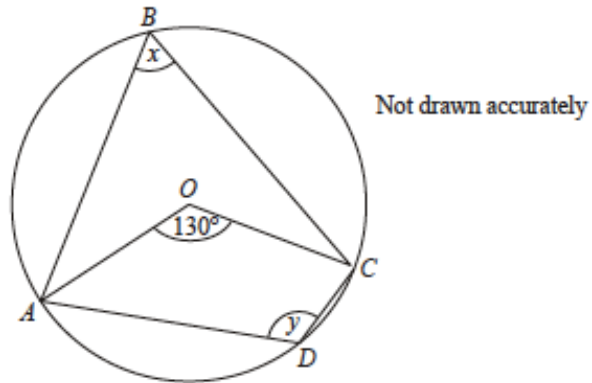


Topic 22 Circle theorems (Post-TT) [33]

1.

In the diagram, O is the centre of the circle.
 A, B, C and D are points on the circumference.
 Angle $AOC = 130^\circ$



- (a) Calculate the value of x .
 Give a reason for your answer.

- (b) Calculate the value of y .
 Give a reason for your answer.

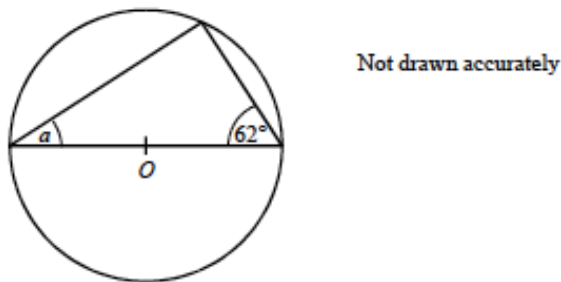
(2)

(2)

(Total 4 marks)

2.

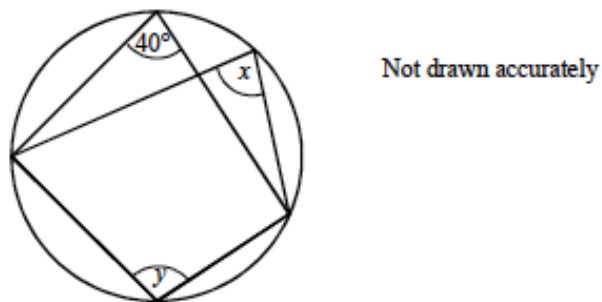
- (a) In the diagram, O is the centre of the circle.



Calculate the value of a .

(2)

(b)



- (i) Write down the value of x .

(1)

- (ii) Calculate the value of y .

(1)

(Total 4 marks)

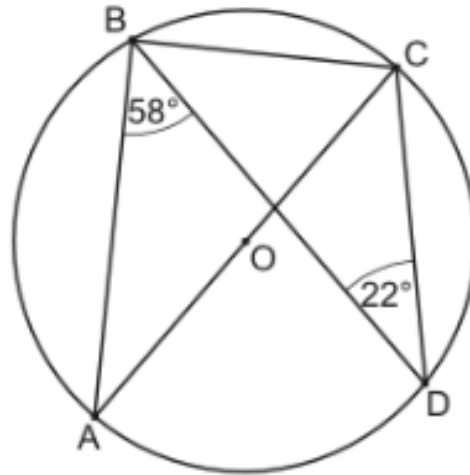
3.

A, B, C and D are points on the circumference of a circle, centre O.

AC is a diameter of the circle.

Angle ABD = 58° .

Angle CDB = 22° .



Not to scale

Work out the sizes of angle ACD and ACB, giving reasons for your answers.

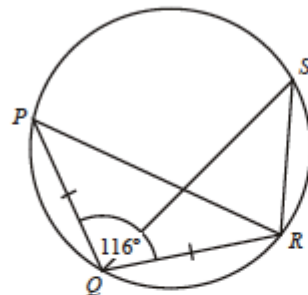
(Total 5 marks)

4.

(a) Points P, Q, R and S lie on a circle.

$PQ = QR$

Angle PQR = 116°



Not drawn accurately

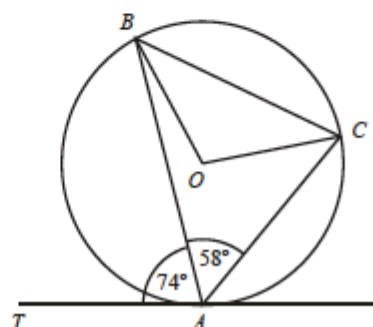
Explain why angle QSR = 32° .

(2)

(b) The diagram shows a circle, centre O.

TA is a tangent to the circle at A.

Angle BAC = 58° and angle BAT = 74° .



Not drawn accurately

(i) Calculate angle BOC.

(1)

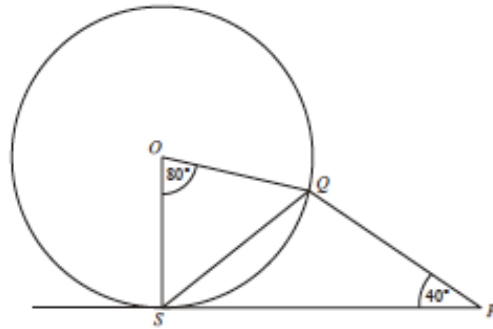
(ii) Calculate angle OCA.

(3)

(Total 6 marks)

5.

In the diagram below points Q and S lie on a circle centre O .
 SR is a tangent to the circle at S .
Angle $QRS = 40^\circ$ and angle $SOQ = 80^\circ$

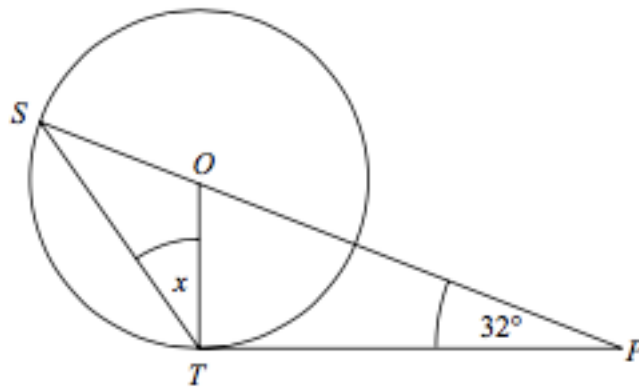


Not drawn accurately

Prove that triangle QSR is isosceles.

(Total 3 marks)

6.



S and T are points on the circumference of a circle, centre O .
 PT is a tangent to the circle.
 SOP is a straight line.
Angle $OPT = 32^\circ$

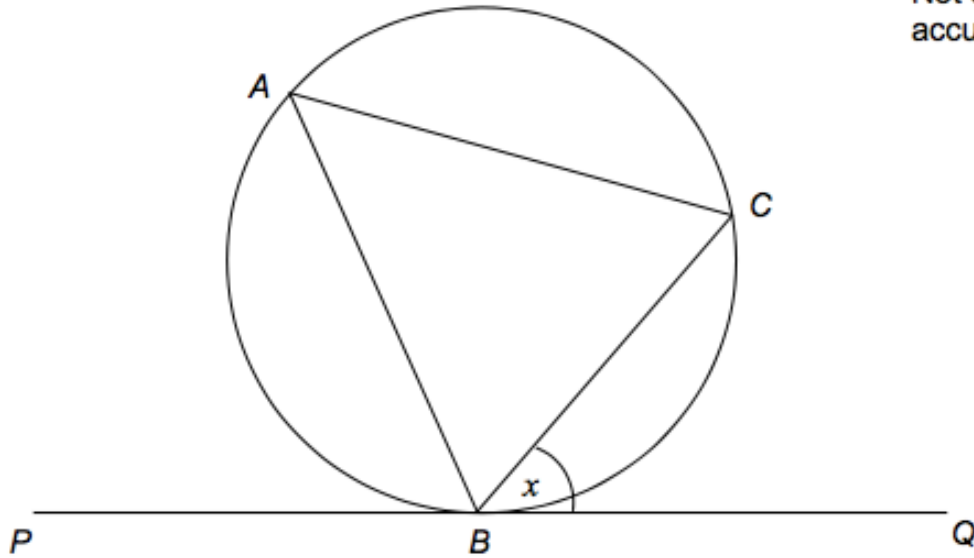
Work out the size of the angle marked x .
You must give a reason for each stage of your working.

(Total 4 marks)

7.

A , B and C are points on a circle.

- BC bisects angle ABQ .
- PBQ is a tangent to the circle.



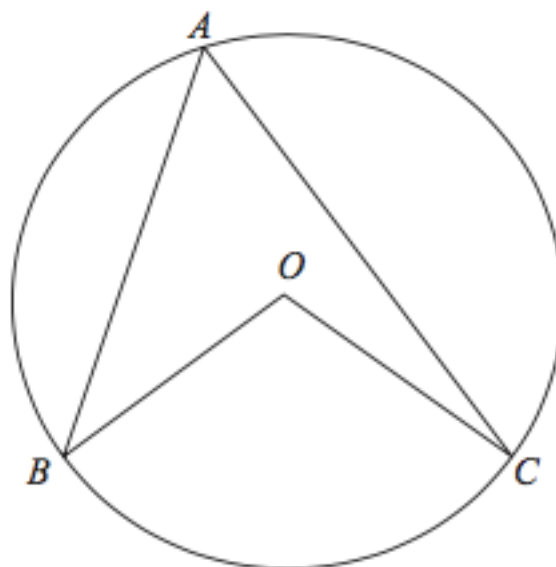
Angle $CBQ = x$

Prove that $AC = BC$

[3 marks]

8.

A , B and C are points on the circumference of a circle centre O .



Prove that angle BOC is twice the size of angle BAC .

(Total 4 marks)