

## Questions

Q1.

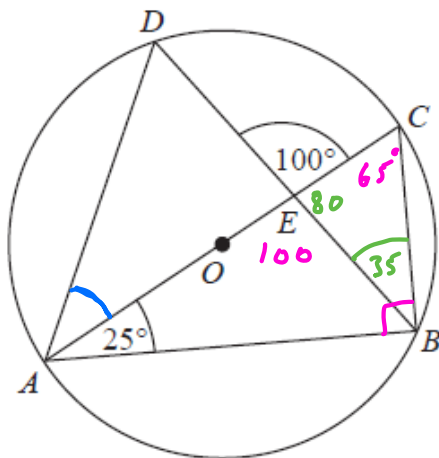


Diagram NOT  
accurately drawn

$$\angle AEB = 100^\circ \text{ (vert opp \(\angle\))}$$

$$\angle ABC = 90^\circ \text{ (\(\angle\text{ in semi-circle})}$$

$$\angle ACB = 65^\circ \text{ (\(\angle\text{ sum of } \triangle\text{)}}$$

$$\angle BEC = 80^\circ \text{ (\(\angle\text{ s on a str line})}$$

$$\angle EBC = 35^\circ \text{ (\(\angle\text{ sum of } \triangle\text{)}}$$

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

$AC$  is a diameter of the circle.

$AC$  and  $BD$  intersect at  $E$ .

Angle  $CAB = 25^\circ$

Angle  $DEC = 100^\circ$

Work out the size of angle  $DAC$ .

You must show all your working.

$$\angle DAC = 35^\circ$$

( $\angle\text{ s in same segment}$ )  
.....

(Total for question = 4 marks)

Q2.

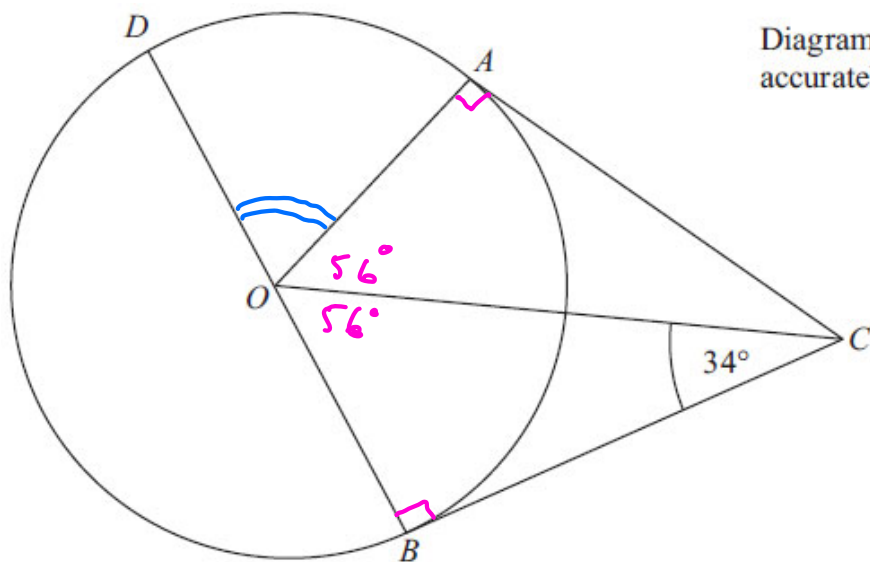


Diagram NOT accurately drawn

$\angle OBC = \angle OAC = 90^\circ$   
 (radius - tangent)  
 $\angle BOC = 56^\circ$   
 ( $\angle$  sum of  $\Delta$ )  
 $\angle OAC = 56^\circ$   
 (symmetry) (congruent  $\Delta$ s)

A, B and D are points on the circumference of a circle, centre O.  
 BD is a diameter of the circle.  
 BC and AC are tangents to the circle.  
 Angle OCB =  $34^\circ$ .

$\angle DOA = 68^\circ$   
 ( $\angle$ s on a str line)

Work out the size of angle DOA.

.....°

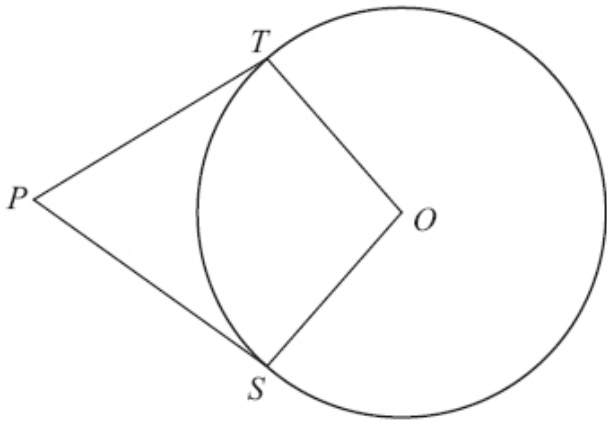
**(Total for Question is 3 marks)**

Q3.

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Diagram **NOT**  
accurately drawn



$S$  and  $T$  are points on the circumference of a circle, centre  $O$ .  
 $PT$  and  $PS$  are tangents.  
Angle  $TPO = 24^\circ$ .

Work out the size of angle  $SOT$ .

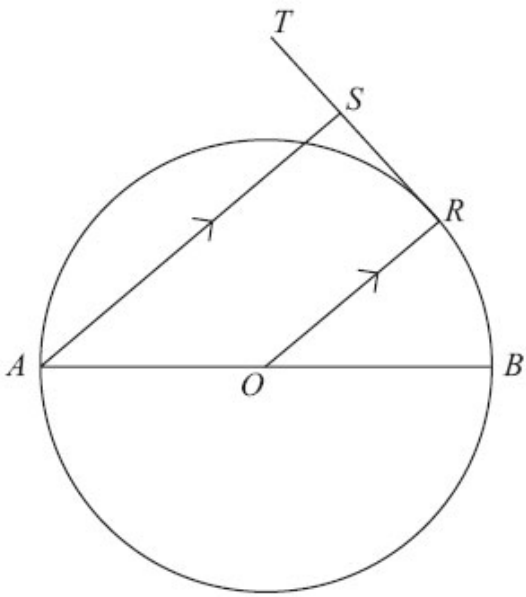
.....°

**(Total for Question is 3 marks)**

Q5.

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Diagram **NOT**  
accurately drawn



$AB$  is a diameter of a circle centre  $O$ .  
The point  $R$  is on the circumference of the circle.  
 $RST$  is the tangent to the circle at  $R$ .  
 $AS$  is parallel to  $OR$ .

Prove that the size of angle  $AST$  is  $90^\circ$ .

**(Total for Question is 3 marks)**

Q6.

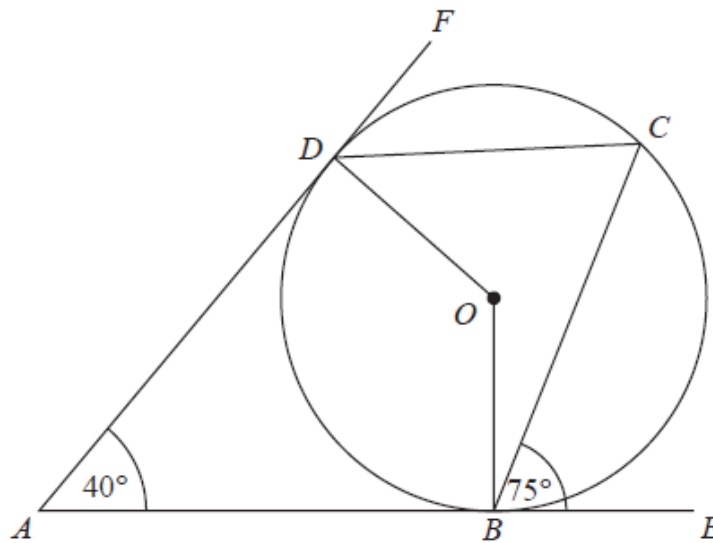


Diagram NOT accurately drawn

$B$ ,  $C$  and  $D$  are points on the circumference of a circle, centre  $O$ .  
 $ABE$  and  $ADF$  are tangents to the circle.

Angle  $DAB = 40^\circ$   
Angle  $CBE = 75^\circ$

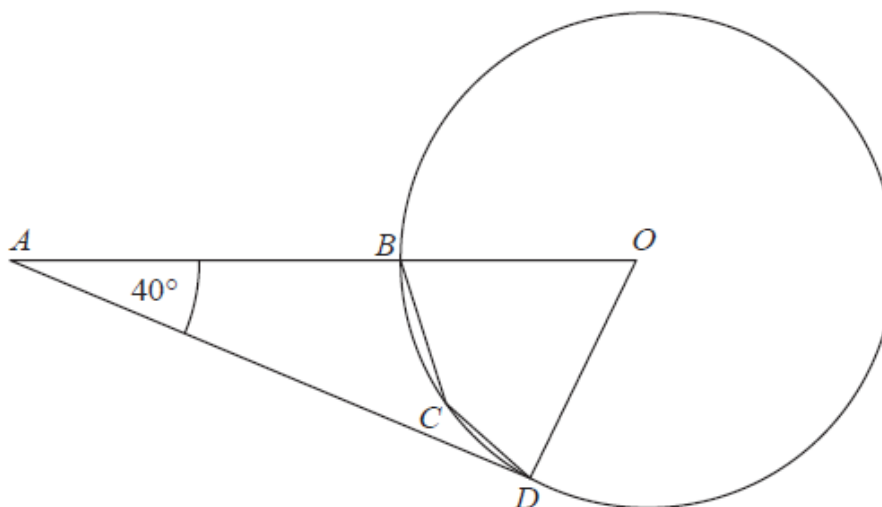
Work out the size of angle  $ODC$ .

.....<sup>o</sup>

**(Total for Question is 3 marks)**

Q7.

Diagram NOT accurately drawn



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

$ABO$  is a straight line.  
 $AD$  is the tangent at  $D$  to the circle.  
 Angle  $DAO = 40^\circ$

Work out the size of angle  $BCD$ .  
 Give a reason for each stage of your working.

**(Total for question = 5 marks)**

Q8.

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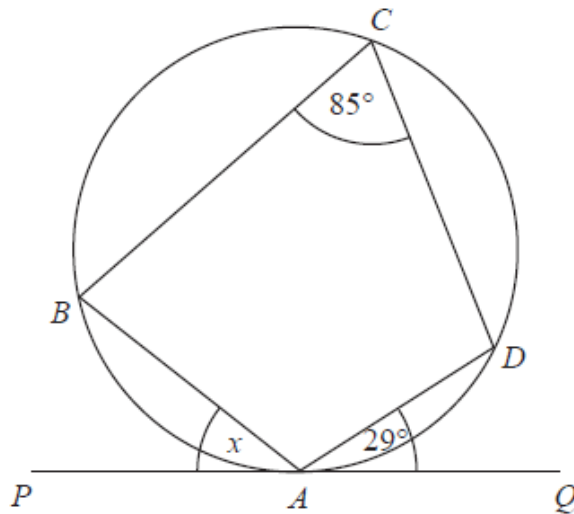


Diagram NOT  
 accurately drawn

In the diagram,

the points  $A$ ,  $B$ ,  $C$  and  $D$  are on the circumference of a circle  
 the line  $PAQ$  is a tangent to the circle  
 angle  $DAQ = 29^\circ$   
 angle  $BCD = 85^\circ$

Work out the size of the angle marked  $x$ .  
 Give a reason for each stage of your working.

**(Total for question = 3 marks)**

Q9.

OR

$\angle AOC = 134^\circ$   
 ( $\angle$  at centre  
 twice  $\angle$  at circle)  
 $x = 360 - 134$   
 $= 226^\circ$

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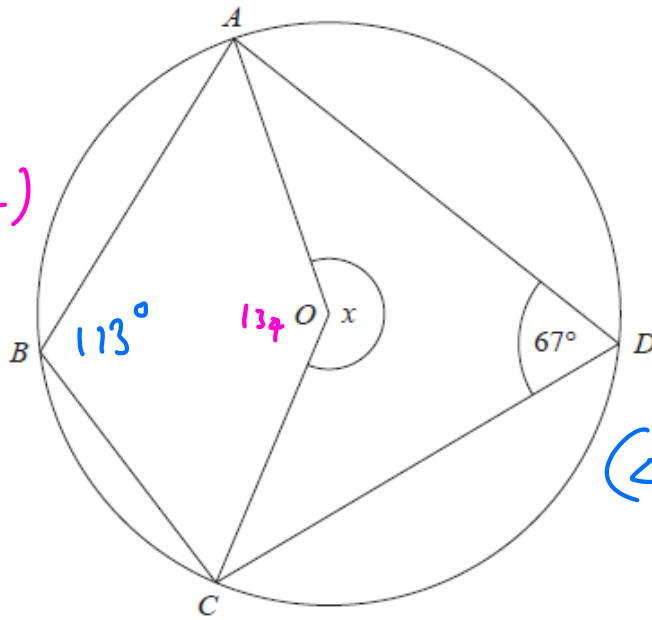


Diagram NOT accurately drawn

$\angle ABC = 113^\circ$   
 (opp cs of cyclic quad)  
 $x = 226^\circ$   
 ( $\angle$  at centre twice  
 $\angle$  at circle)

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

Angle ADC =  $67^\circ$

Find the size of the angle marked x.

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(Total for question = 2 marks)

Q10.

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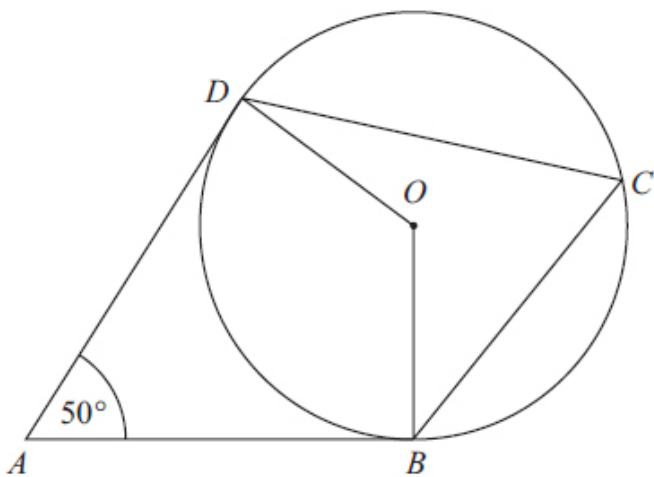


Diagram NOT accurately drawn

B, C and D are points on the circumference of a circle, centre O.  
AB and AD are tangents to the circle.



Angle  $DAB = 50^\circ$

Work out the size of angle  $BCD$ .

Give a reason for each stage in your working.

**(Total for Question is 4 marks)**

Q11.

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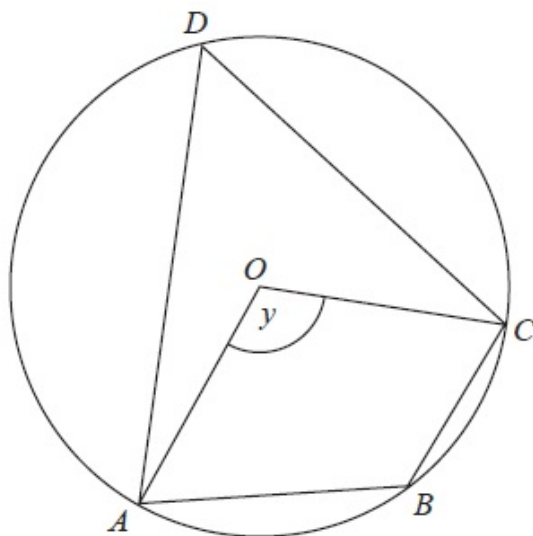


Diagram **NOT**  
accurately drawn

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

Angle  $AOC = y$ .

Find the size of angle  $ABC$  in terms of  $y$ .

Give a reason for each stage of your working.

**(Total for Question is 4 marks)**

Q12.

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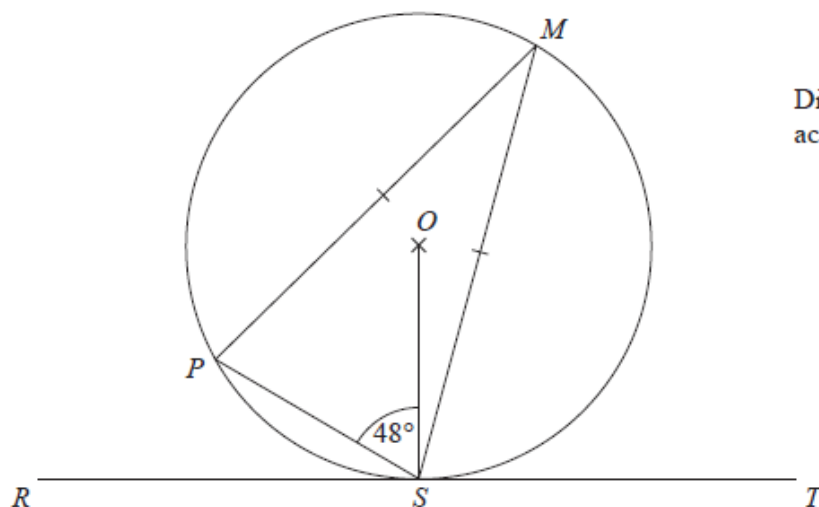


Diagram NOT  
accurately drawn

$P$ ,  $M$  and  $S$  are points on a circle, centre  $O$ .  
 $RST$  is a tangent to the circle.

Angle  $PSO = 48^\circ$   
 $MP = MS$

Work out the size of angle  $MST$ .  
Give reasons for each stage of your working.

**(Total for question = 5 marks)**

Q13.

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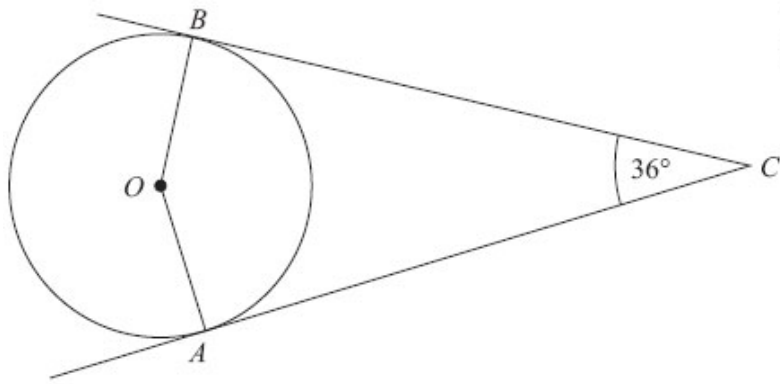


Diagram **NOT**  
accurately drawn

$A$  and  $B$  are points on the circumference of a circle, centre  $O$ .  
 $AC$  and  $BC$  are tangents to the circle.

Angle  $ACB = 36^\circ$ .

Find the size of angle  $OBA$ .  
Give reasons for your answer.

**(Total for Question is 4 marks)**

Q14.

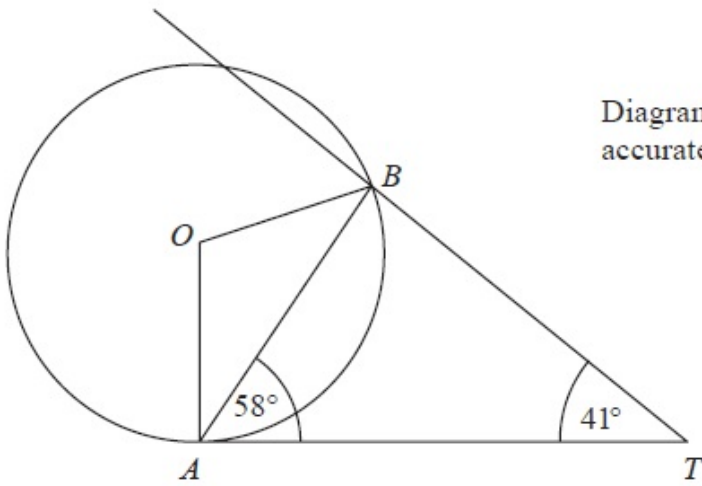


Diagram NOT accurately drawn

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

AT is a tangent to the circle.

Angle  $TAB = 58^\circ$ .

Angle  $BTA = 41^\circ$ .

Calculate the size of angle  $OBT$ .

You must give reasons at each stage of your working.

**(Total for Question is 5 marks)**

Q15.

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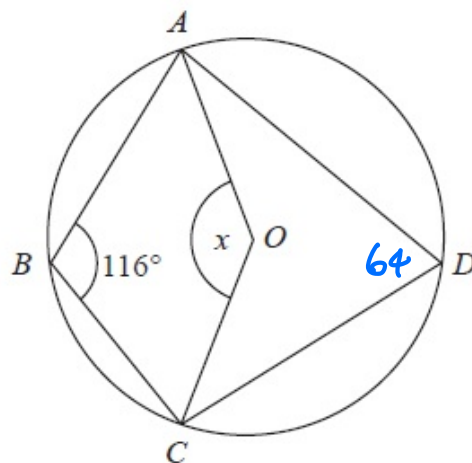


Diagram NOT accurately drawn

$$\angle ADC = 64^\circ$$

(opp as ext cyclic quad)

$$x = 128^\circ$$

( $\angle$  at centre twice  $\angle$  at circ)

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

Angle  $ABC = 116^\circ$

Find the size of the angle marked x.

Give reasons for your answer.

**(Total for Question is 4 marks)**