



Education Consultancy

Edexcel GCSE Mathematics CIRCLE THEOREMS

Materials Required:

- Pen

- HB Pencil - Ruler (in centimetres and millimetres) - Protractor

- Compass

Information:

 The marks allocated for each question are displayed within brackets – utilise this information to gauge the appropriate amount of time to dedicate to each question
 Questions marked with an asterisk (*) will assess your written communication; be careful of spelling, punctuation and grammar with these questions

Instructions:

Use a black ink pen to answer all questions
Fill your name in the section below
Answer the questions in the spaces provided
Show your working out for all answers

Advice:

- Carefully read the question before attempting to answer it

- Be vary of time and try to answer every question

 If you have enough time in the end, go back and check your answers. A good way to check your answers is to retry the question with the hope of getting the same answer as before without looking at your working out from before

NO CALCULATOR ALLOWED

NAME:



.....o

(4 marks)





<u>(4 marks)</u>

	Diagram NOT accurately drawn
B C O O B C O	
In the diagram, <i>O</i> is the centre of the circle. <i>A</i> and <i>C</i> are points on the circumference of the circle. <i>BCO</i> is a straight line. <i>BA</i> is a tangent to the circle.	
AB = 8 cm. OA = 6 cm.	
(a) Explain why angle <i>OAB</i> is a right angle.	
	(1)
(b) Work out the length of <i>BC</i> .	
	cm
	(3) (4 marks)



A, B, C and D are points on a circle, centre O. BC = CD. Angle $BCD = 130^{\circ}$.

(a) Write down the size of angle *BAD*. Give a reason for your answer.

····· (2)

(b) Work out the size of angle *ODC*. Give reasons for your answer.

• (4)

(6 marks)



Diagram NOT accurately drawn

In the diagram, <i>A</i> , <i>B</i> , <i>C</i> and <i>D</i> are points on the circumference of a circle, centre <i>O</i> . Angle $BAD = 70^{\circ}$. Angle $BOD = x^{\circ}$. Angle $BCD = y^{\circ}$.	
(a) (i) Work out the value of x . x =	
(ii) Give a reason for your answer.	
	(2)
(b) (i) Work out the value of <i>y</i> .	
<i>y</i> =	
(ii) Give a reason for your answer.	
	(2) (4 marks)

10.	
B	Diagram NOT accurately drawn
A C (36°)	
The diagram shows a circle centre <i>O</i> . <i>A</i> , <i>B</i> and <i>C</i> are points on the circumference.	
DCO is a straight line. DA is a tangent to the circle.	
Angle $ADO = 36^{\circ}$	
(a) Work out the size of angle <i>AOD</i> .	
	° (2)
(b) (i) Work out the size of angle <i>ABC</i> .	
	o
(ii) Give a reason for your answer.	
	(2)
	(3) (4 marks)



Diagram NOT accurately drawn



B, *D* and *E* are points on a circle centre *O*. *ABC* is a tangent to the circle. *BE* is a diameter of the circle. Angle $DBE = 35^{\circ}$.

(a) Find the size of angle *ABD*.

Give a reason for your answer.

······ (2)

(b) Find the size of angle *DEB*.

Give a reason for your answer.

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(2)

(4 marks)



P, Q and T are points on the circumference of a circle, centre O. The line ATB is the tangent at T to the circle.

PQ = TQ. Angle $ATP = 58^{\circ}$.

Calculate the size of angle *OTQ*. Give a reason for each stage in your working.

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(4 marks)



(2)



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

Angle $ABC = 85^{\circ}$.

(b)

Work out the size of the angle marked x° . (i) •

(ii) Give a reason for your answer.

..... (2) (4 marks)

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13.

(a)

(i)

(ii)



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*. Give reasons for your answer.

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(Total 5 marks)