MME
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GCSE MATHEMATICS

AQA | Edexcel | OCR | WJEC

(Level 6 - 9)

Circle Theorems

Please write clearly in block capitals

Forename:
Surname:

Materials

For this paper you must have:
- mathematical instruments

You ***can*** use a calculator.

Instructions

- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Fill in the boxes at the top of this page.
- Answer all questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- Do all rough work in this book. Cross through any work you do not want to be marked.

Information

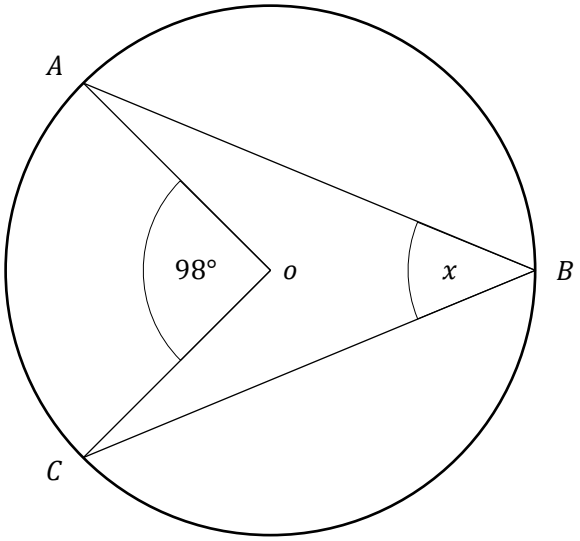
- The marks for questions are shown in brackets.
- You may ask for graph paper, tracing paper and more answer paper. These must be tagged securely to this answer book.

Advice

- In all calculations, show clearly how you work out your answer.

1 Points A, B, and C are all on the circumference of the circle. *(Level 6)*

O represents the centre.



Not drawn accurately

Calculate the angle x, giving a reason for your answer.

[2 marks]

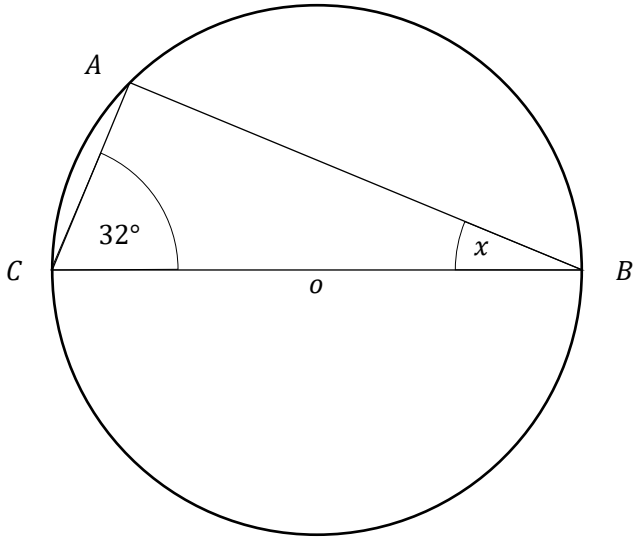
Answer _____

Turn over for next question

2

2 Points A, B, and C lie on the circumference of a circle. *(Level 6)*

The line BC passes through the centre of the circle, O.



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Calculate the angle x, giving your reasoning for each step.

[2 marks]

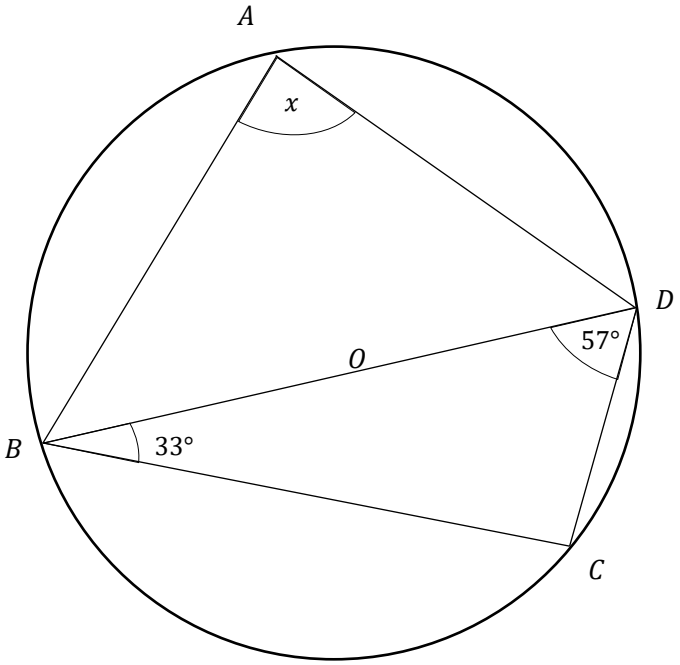
Answer _____

2

3 The diagram below shows a cyclic quadrilateral $ABCD$. *(Level 6)*

Points A, B, C and D touch the circumference of the circle.

Line BD goes through centre O.



Not drawn accurately

Work out the size of the angle marked x.

Explain your reasoning carefully.

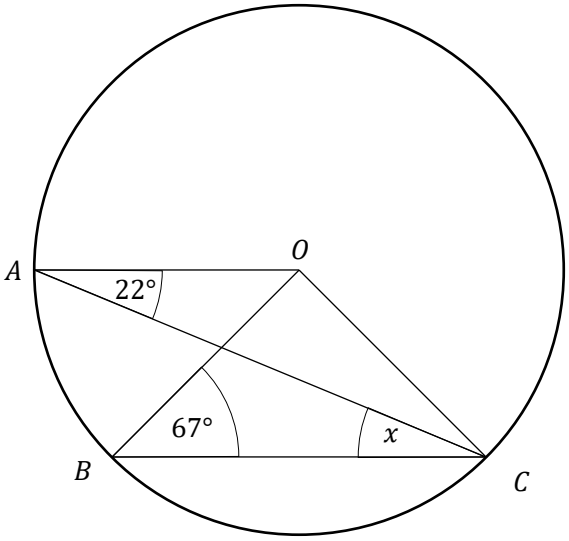
[2 marks]

Answer _____

2

4 Points A, B, and C are all on the circumference of a circle. *(Level 6)*

O represents the centre.



Not drawn accurately

Calculate the angle x, giving your reasoning for each step.

[2 marks]

Answer _____

Turn over for next question

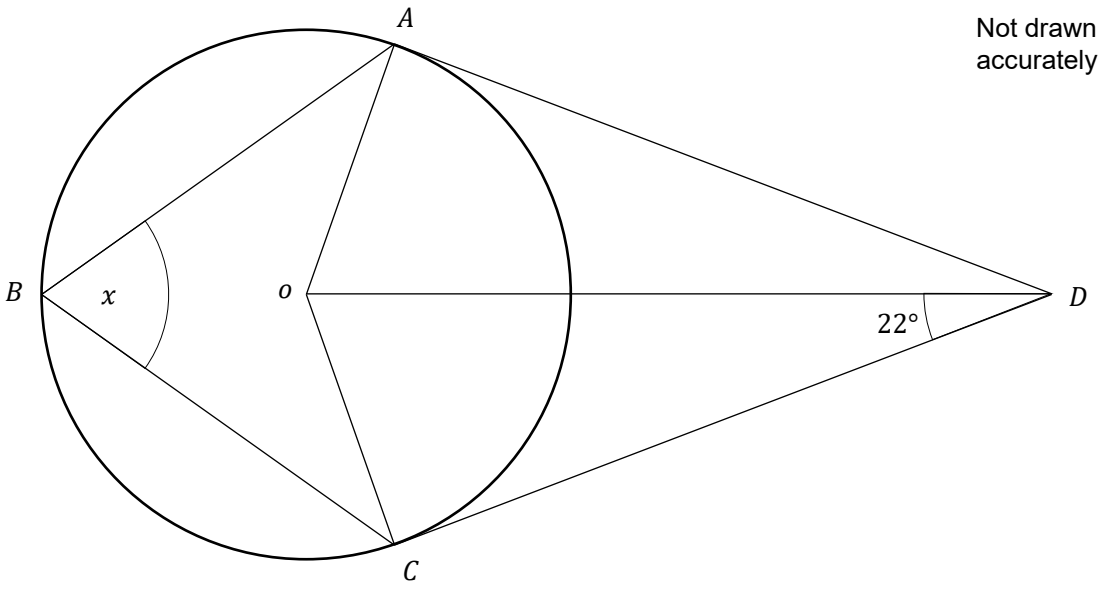
2

5 Points A, B, and C are all on the circumference of the circle. *(Level 7)*

O represents the centre.

DA and DC are tangents to the circle.

Angle $CDO = 22°$



Not drawn accurately

Calculate the angle x, giving your reasoning for each step.

[4 marks]

Answer _____

4

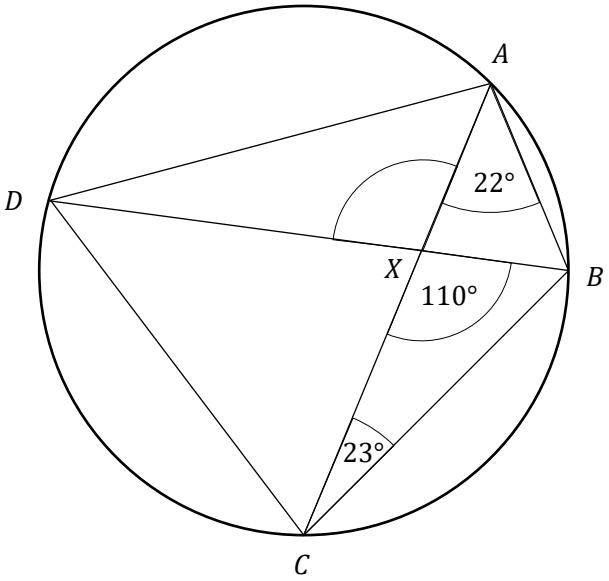
6 Points A, B, C, and D are all on the circumference of the circle. *(Level 7)*

Point X is the intersection between line AC and line DB

Angle $CXB = 110°$

Angle $XAB = 22°$

Angle $BCX = 23°$



Not drawn accurately

6(a) Calculate the angle XBC

[1 mark]

Answer _____

6(b) Calculate the angle DAX

Give a reason for your answer.

[2 marks]

Answer _____

Turn over for next question

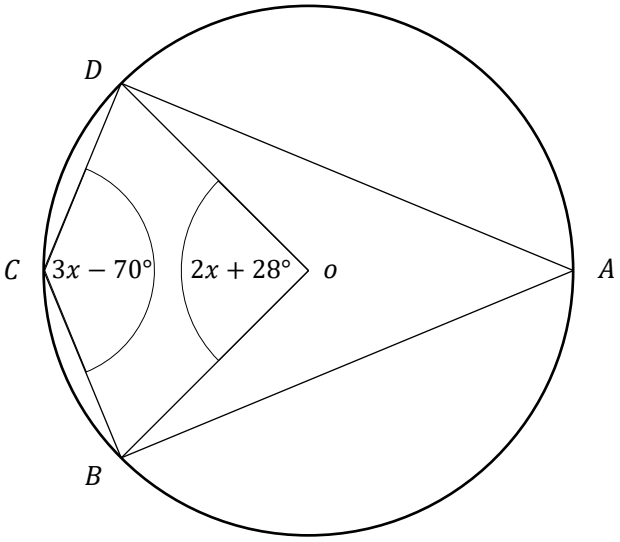
3

7 Points A, B, and C are all on the circumference of the circle. *(Level 8)*

O represents the centre.

Angle $DOB = 2x + 28$

Angle $DCB = 3x - 70$



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Calculate the value of x.

[3 marks]

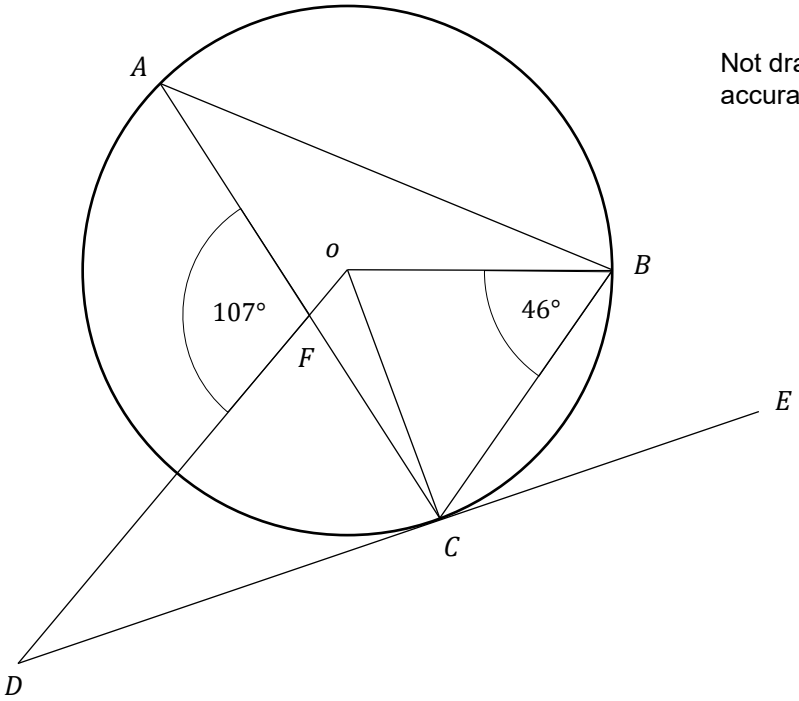
Answer _____

3

8 Points A, B and C are on the circumference of a circle, with centre O. *(Level 9)*

Points C, D and E lie on a tangent line.

$AB = AC$



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Calculate angle CDO.

[5 marks]

Answer _____

End of Questions

5

END