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.
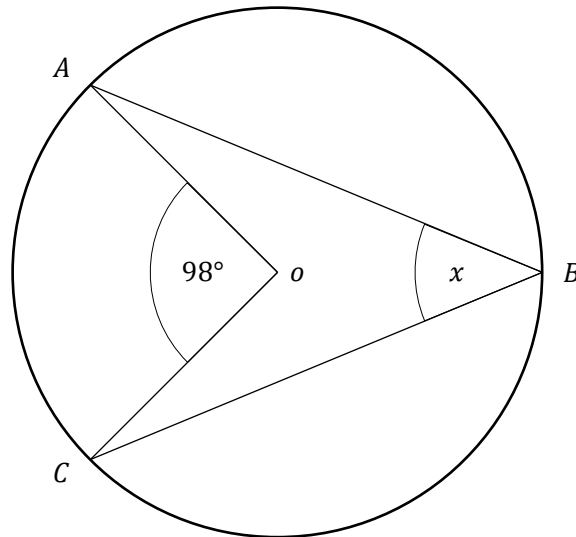
Information

• 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 _____
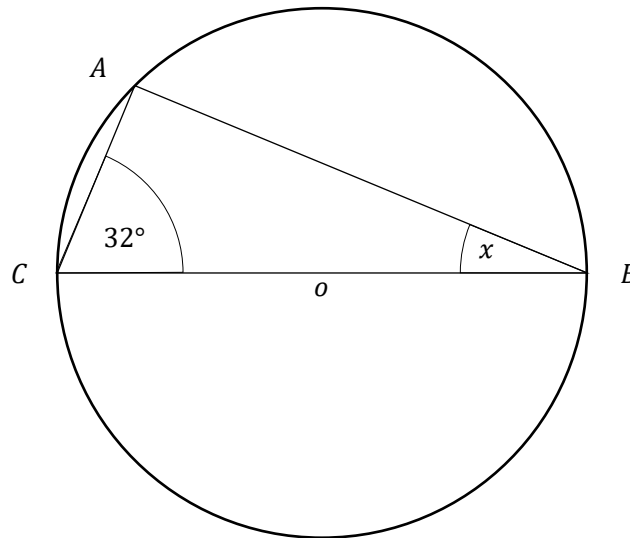
Turn over for next question

2

Turn over ▶

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.

Not drawn accurately

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

[2 marks]

_____

_____

_____

_____

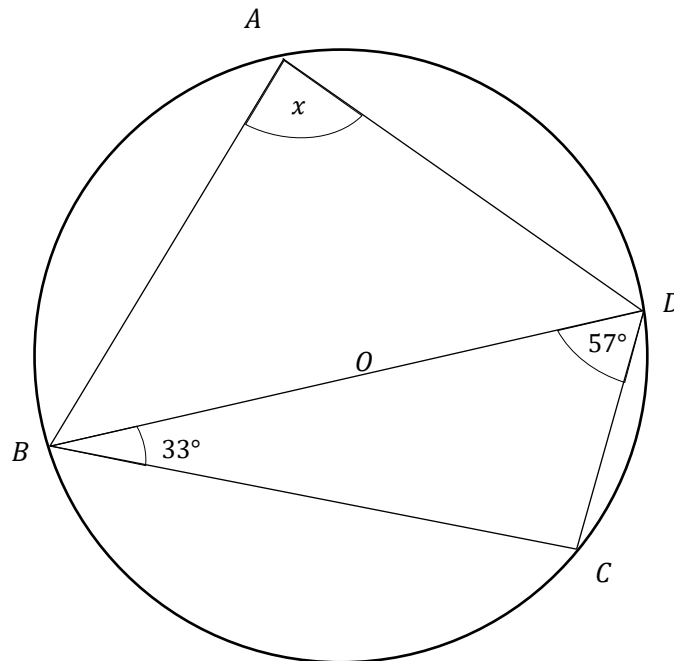Answer   _____

2

Turn over ▶

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.

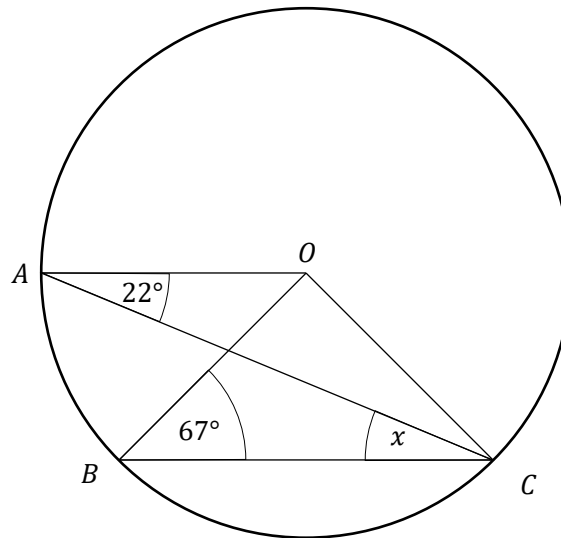Explain your reasoning carefully.

[2 marks]

_____

_____

_____

_____

_____

_____

_____

_____

Answer _____

2

Turn over ▶

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
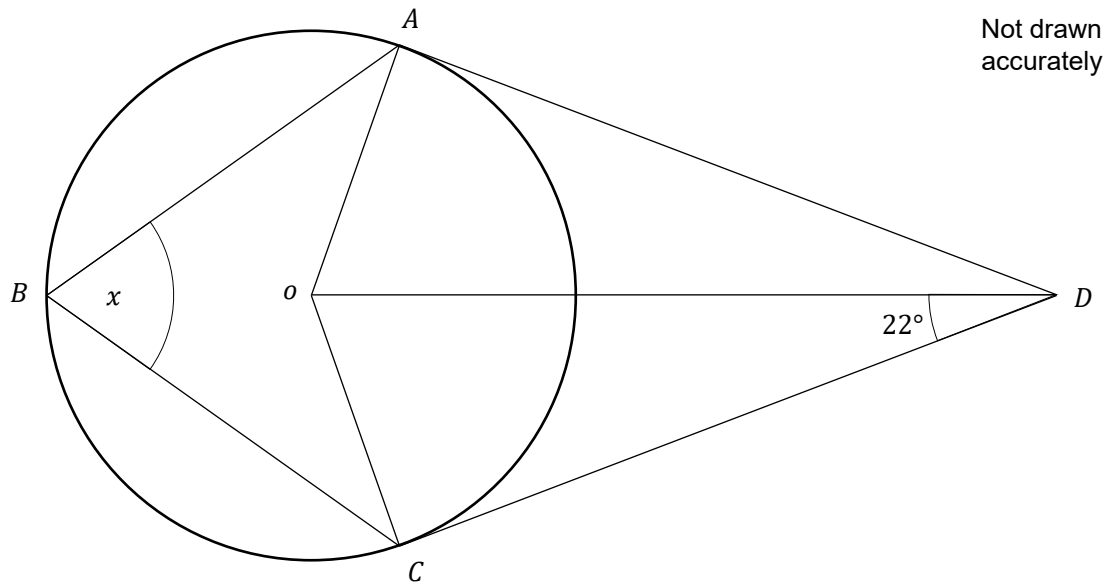
Turn over ▶

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)*
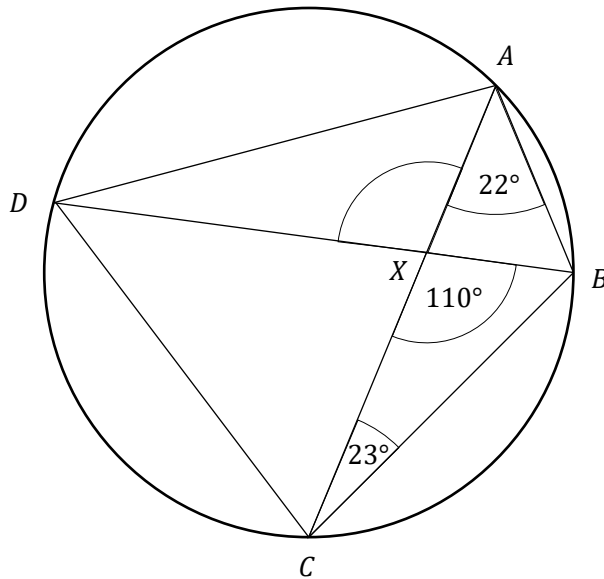
Point X is the intersection between line AC and line DB

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.
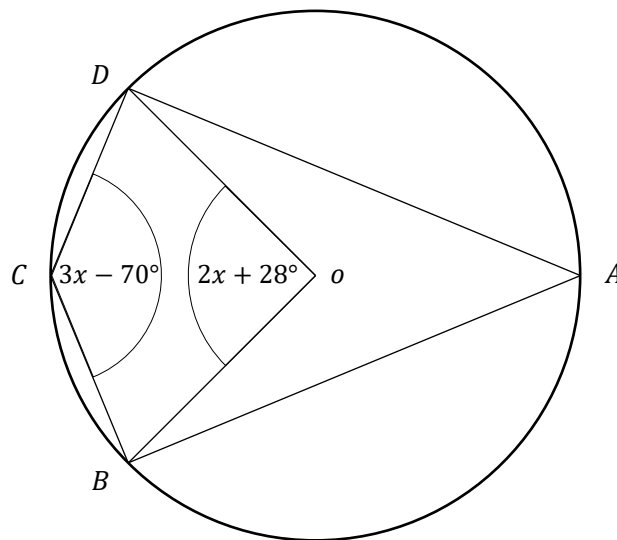
[2 marks]

Answer _____

Turn over for next question

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 $DCB = 3x - 70$

Not drawn
accurately

Calculate the value of x.

[3 marks]

_____

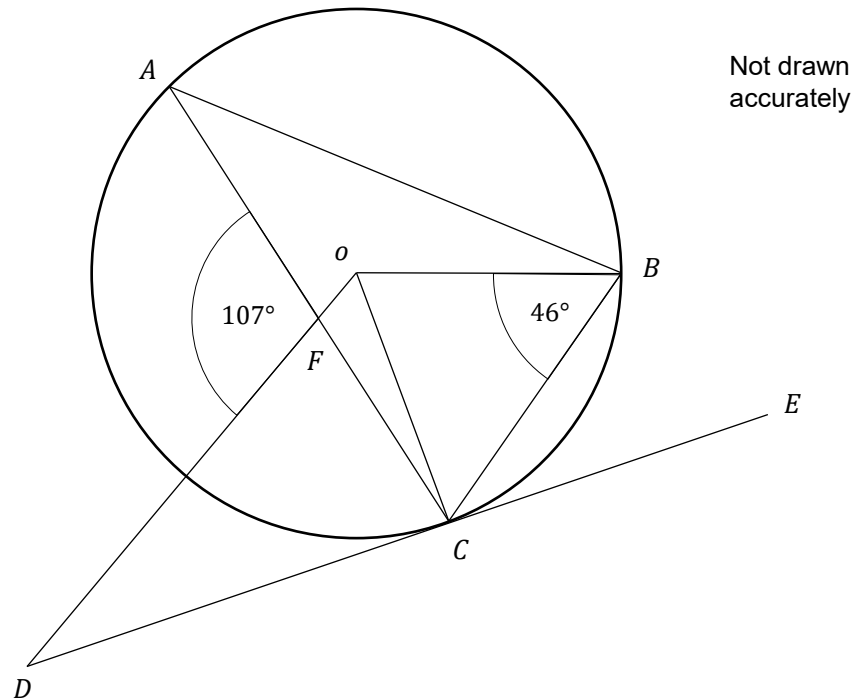_____

_____

_____

Answer _____

3

Turn over ►

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.

$AB = AC$

Not drawn
accurately

Calculate angle CDO.

[5 marks]

Answer _____

End of Questions

5

END

© Maths Made Easy 2020