MME
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GCSE MATHEMATICS

AQA | Edexcel | OCR | WJEC

(Level 6 - 9)

3D Pythagoras and Trigonometry

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

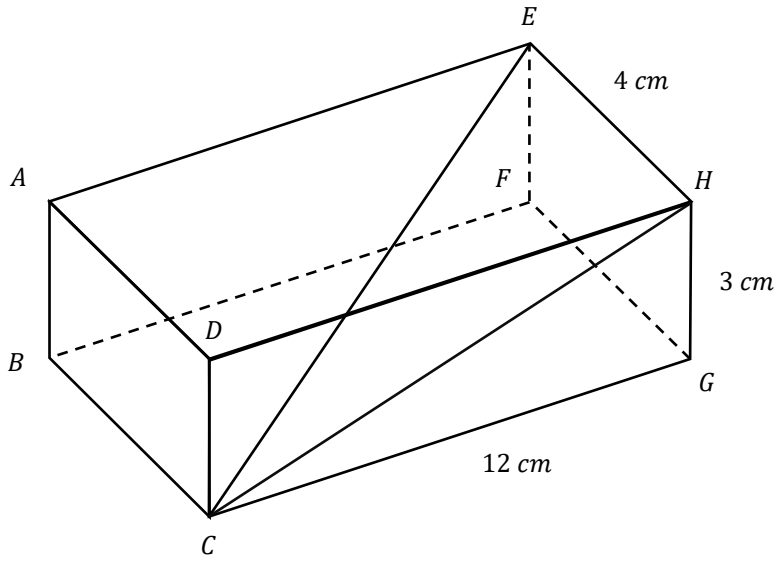
- In all calculations, show clearly how you work out your answer.

1 A cuboid is pictured in the diagram below. *(Level 6)*

$EH = 4cm$

$GH = 3cm$

$CG = 12cm$



Not drawn accurately

1(a) Find the length CH

[2 marks]

Answer _____ cm

1(b) Using your previous answer, find the length CE.

Give your answer to 2 decimal places.

[2 marks]

Answer _____ cm

4

2 A cuboid is pictured in the diagram below. *(Level 6)*

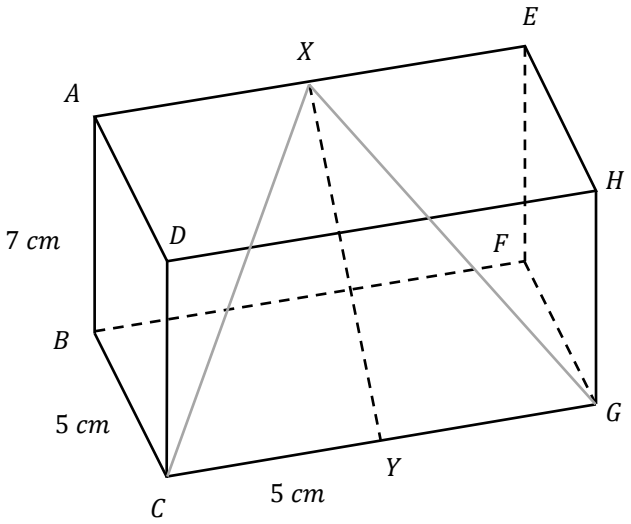
$AB = 7$ cm

$BC = 5$ cm

$CY = 5$ cm

X is the midpoint of AE

Y is the midpoint of CG



Not drawn accurately

2(a) Find the length XY.

Give your answer to 2 decimal places

[2 marks]

Answer _____ cm

2(b) Using your answer to part a, find the length CX.

Give your answer to 2 decimal places.

[1 mark]

Answer _____ cm

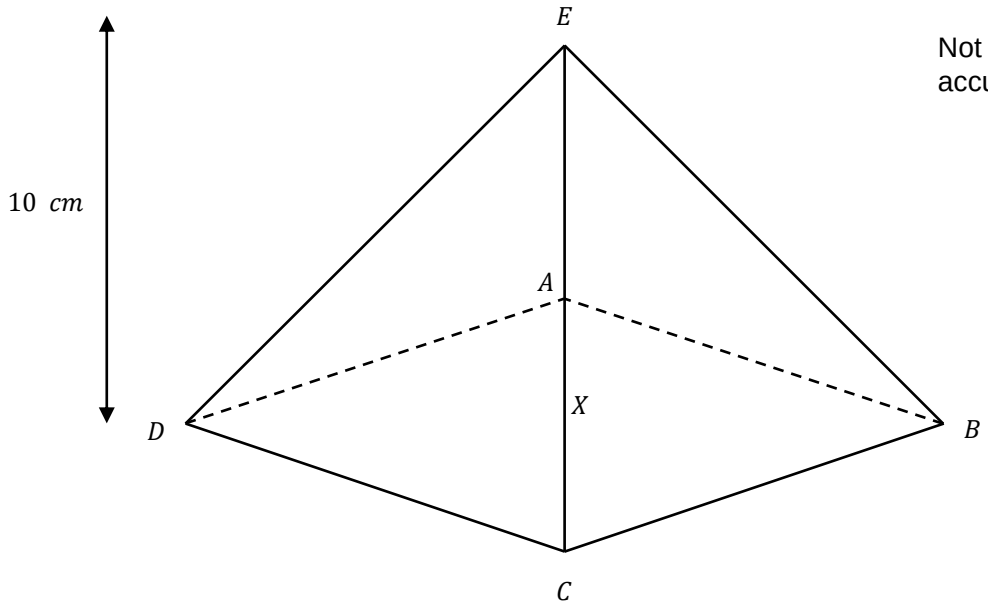
3

3 A square-based pyramid has the following properties. *(Level 7)*

Length $\mathrm{DC} = 12\ cm$

The vertical height = $10\ cm$

Point X is the centre of the square base.



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3(a) Find length AE

Give your answer to 2 decimal places.

[2 marks]

Answer _____ cm

3(b) Find the angle AEB

Give your answer to 2 decimal places.

[2 marks]

Answer _____

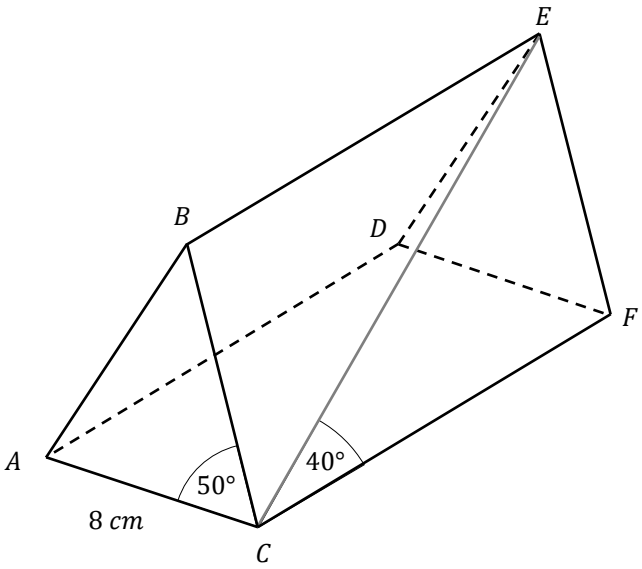
4

4 The diagram below shows an isosceles triangular prism. *(Level 7)*

$AC = 8cm$

$Angle\ BCA = 50°$

$Angle\ FCE = 40°$



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Find the length EC.

Give your answer to 2 decimal places.

[3 marks]

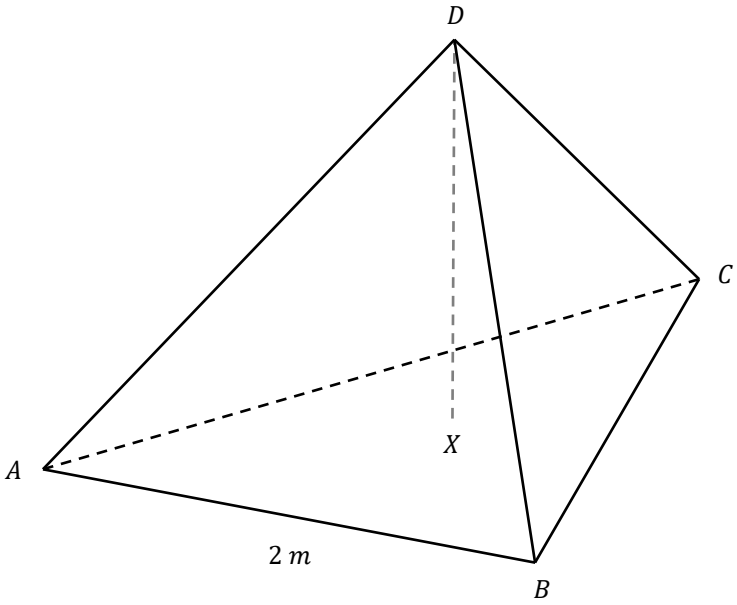
Answer: _____

3

5 The diagram shows a tetrahedron *(Level 8)*

All faces are equilateral triangles with side length 2 m.

Point X lies directly below point D.



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Find the length DX

Give your answer to 2 decimal places.

[3 marks]

Answer _____

Turn over for next question

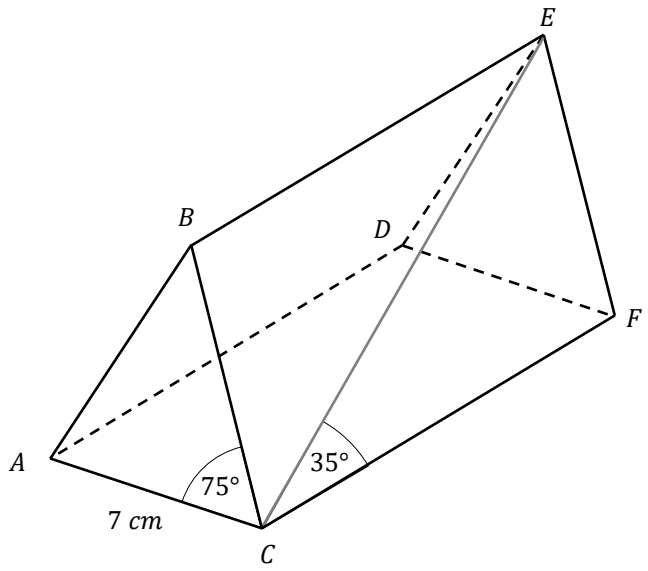
3

6 In the triangular prism below: *(Level 8)*

$AC = 7cm$

$Angle\ BCA = 75°$

$Angle\ FCE = 35°$



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Calculate the volume of the prism.

Give your answer to 1 decimal place.

[4 marks]

Answer _____

Turn over for next question

4

7 The diagram below shows a doorstop, modelled as a triangular prism. *(Level 9)*

Angle $ABC = 90°$

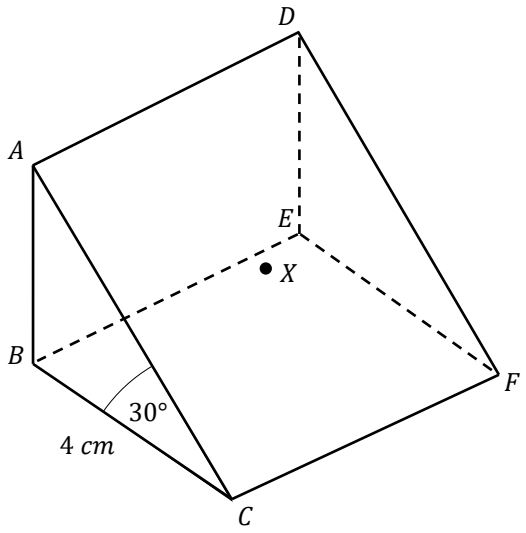
Angle $ACB = 30°$

$BC = 4cm$

$AD = 2AB$

X is a point on the **centre** of the face $ADFC$.

$AX = \frac{a\sqrt{6}}{3}$



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Find the value of a.

[5 marks]

Answer _____

End of Questions

5

END