

Exam Questions

2D & 3D Shapes

Properties of Polygons / Properties of 3D Shapes / Nets of Solids / Plans & Elevations

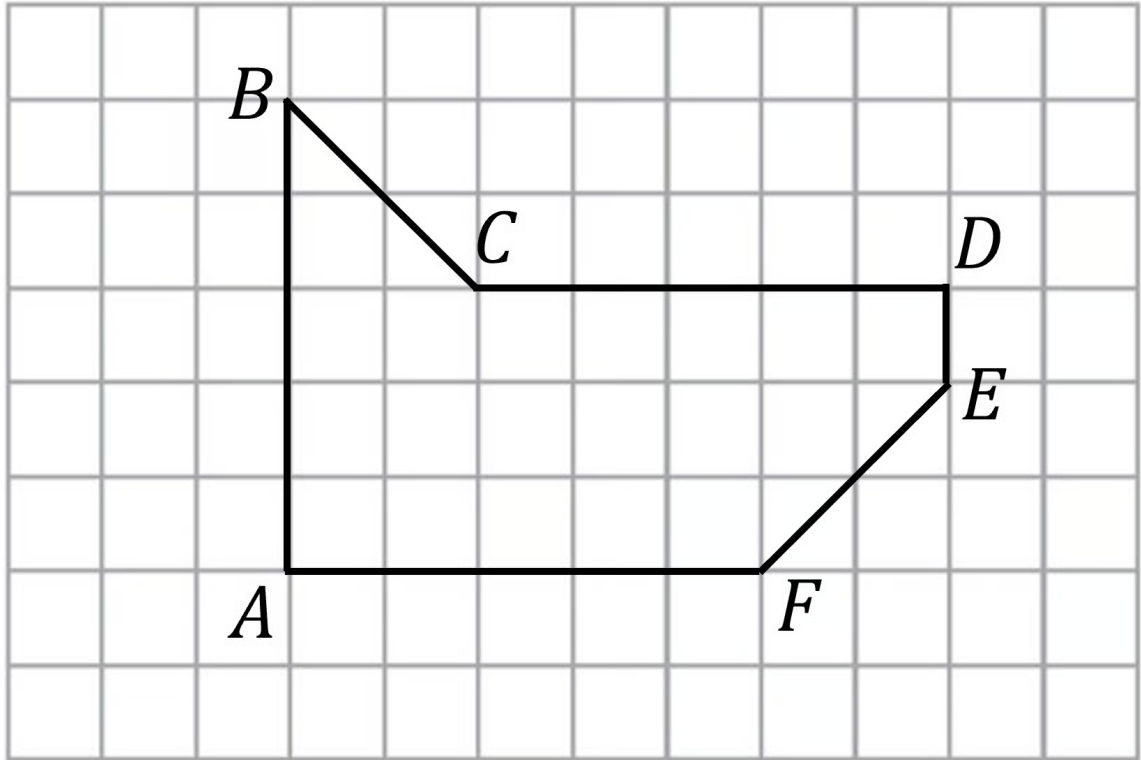
Easy (7 questions)	/16
Medium (11 questions)	/25
Hard (9 questions)	/38
Total Marks	/79

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Easy Questions

1 Here is polygon $ABCDEF$ on a square grid.



(i) Write down the mathematical name of the polygon.

[1]

(ii) Which side of the polygon is parallel to the side AB ?

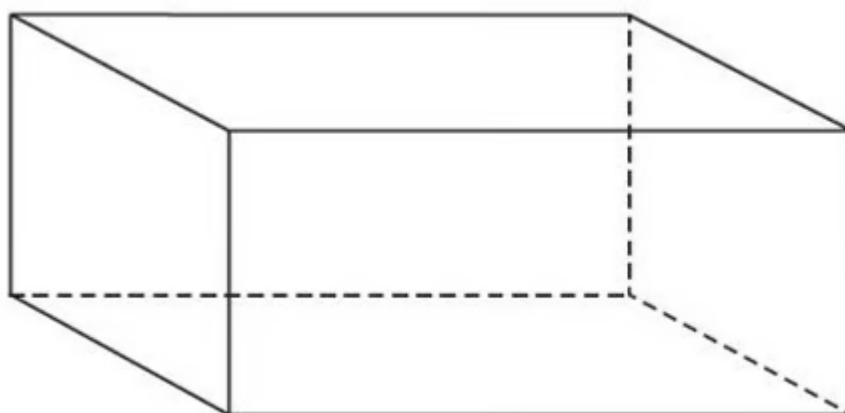
[1]

(iii) Write down a side of the polygon that is perpendicular to AB .

[1]

(3 marks)

2 Here is a 3D shape.



(i) Write down the name of this shape.

[1]

(ii) Write down the number of vertices this shape has.

[1]

(iii) Write down the number of faces this shape has.

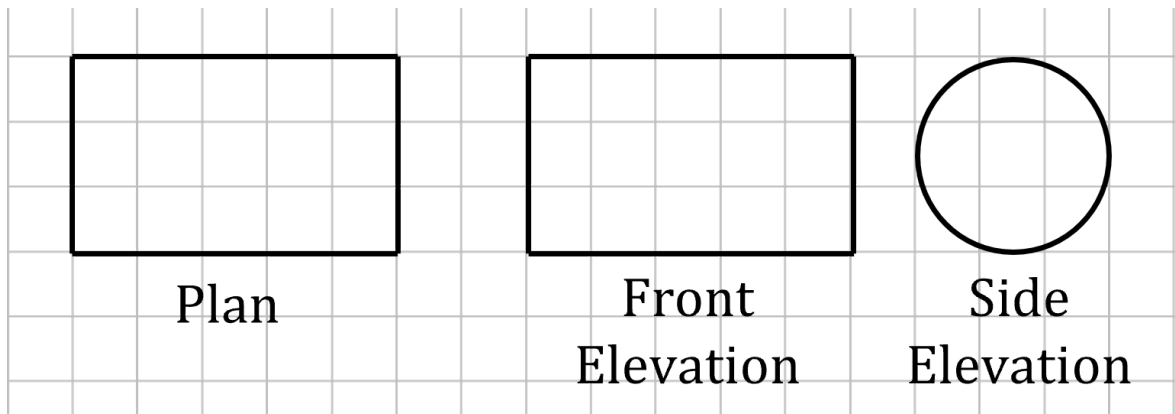
[1]

(iv) Write down the number of edges this shape has.

[1]

(4 marks)

- 3 The diagram shows the plan, front elevation and side elevation of a solid shape, drawn on a centimetre grid.



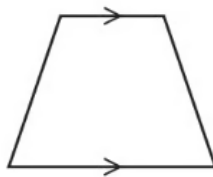
Draw a sketch of the solid shape.

Give the dimensions of the solid on your sketch.

(2 marks)

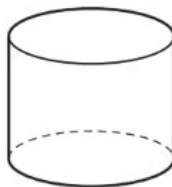
- 4 Write down the mathematical name for this

i) quadrilateral,



[1]

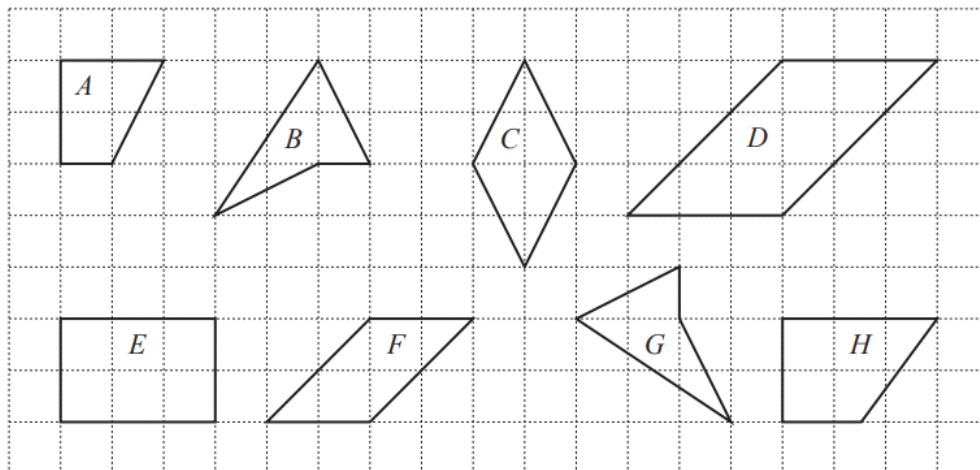
ii) solid.



[1]

(2 marks)

5 (a)



The diagram shows some quadrilaterals.

Complete the statements.

Quadrilateral is a rhombus.

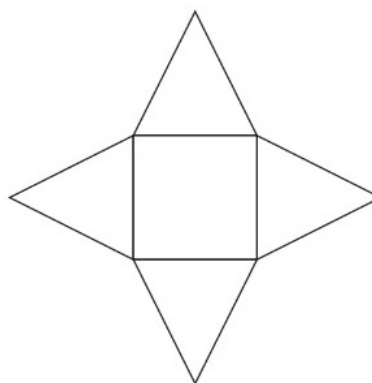
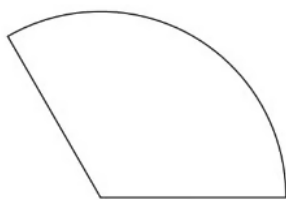
(1 mark)

(b) Quadrilateral *A* is a

(1 mark)

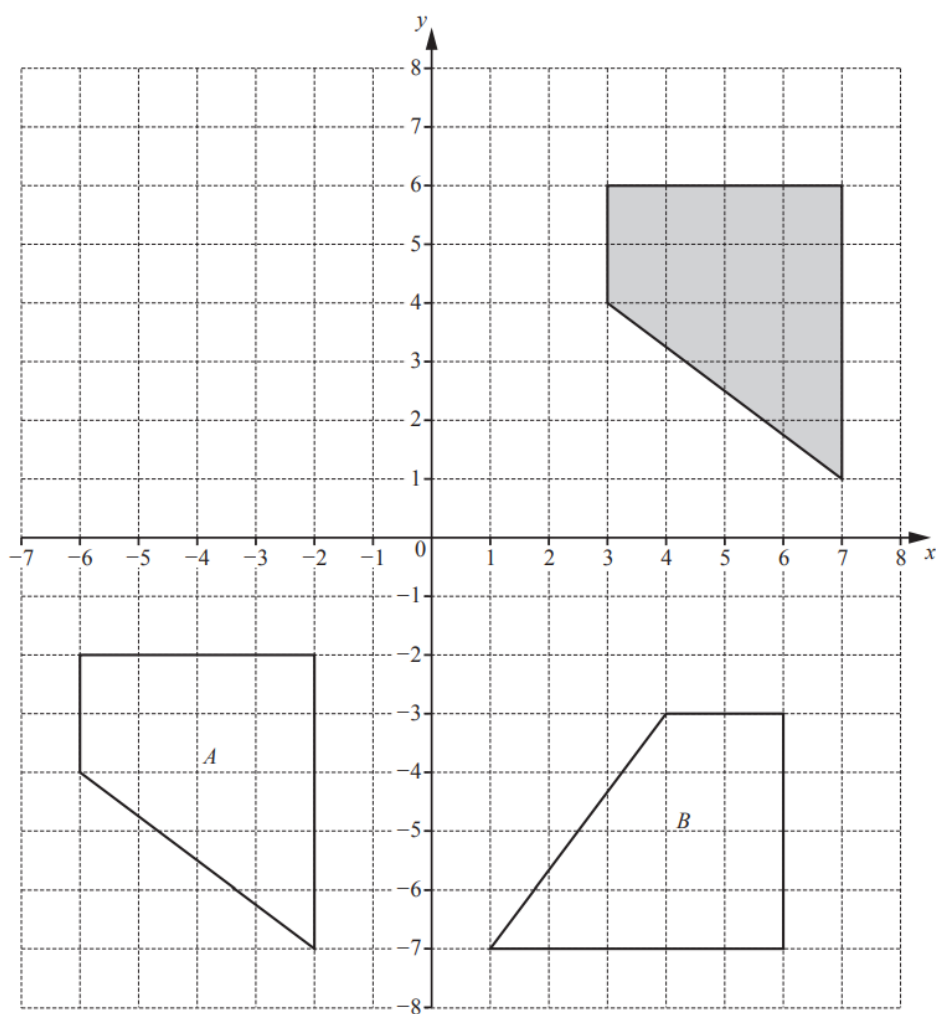
6 The diagram shows the nets of two solids.

Write down, under each net, the mathematical name for the solid.



(2 marks)

7 Three quadrilaterals are shown on a 1 cm^2 grid.

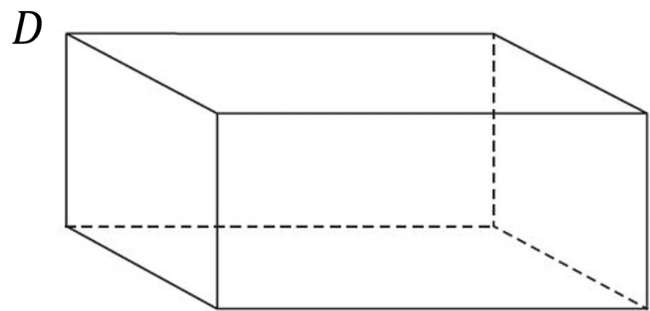
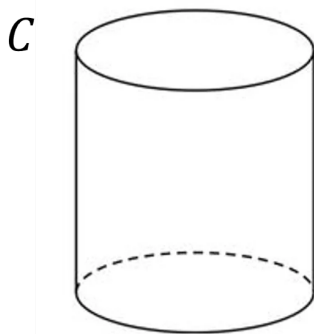
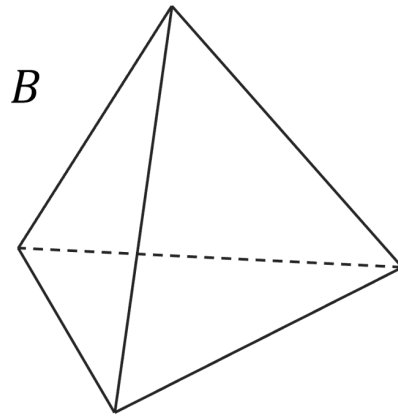
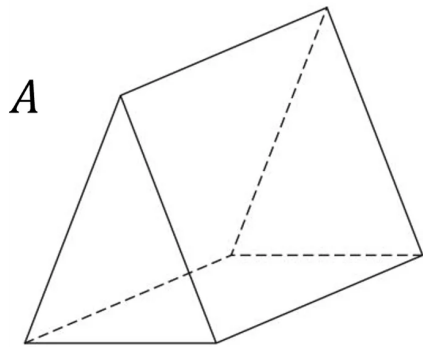


Write down the mathematical name of the shaded quadrilateral.

(1 mark)

Medium Questions

1 Below are 4 different 3D shapes, labelled *A*, *B*, *C*, *D*.



(i) Which of these shapes has the greatest number of faces, and how many does it have?

[1]

(ii) Which of these shapes has the least number of edges, and how many does it have?

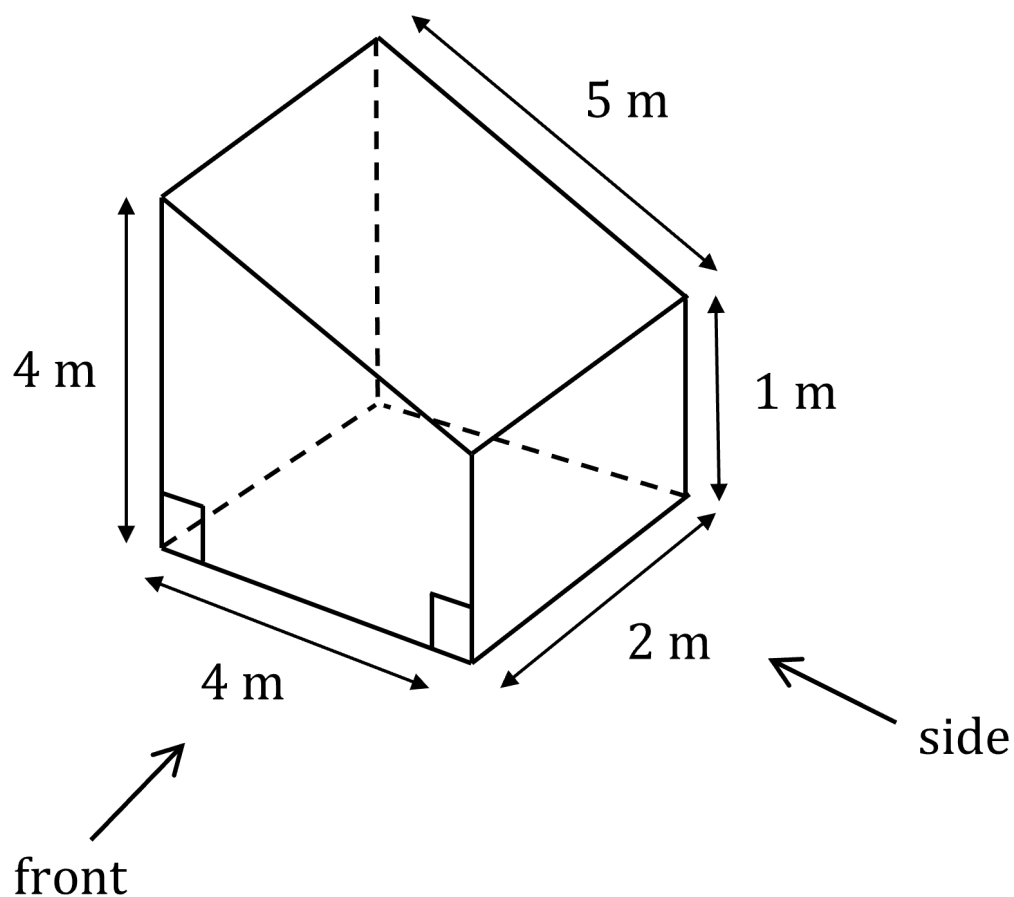
[1]

(iii) Explain why shape **B** is **not** a prism.

[1]

(3 marks)

2 The diagram shows a prism with a cross section in the shape of a trapezium.



On the centimetre grid below, draw the front elevation and the side elevation of the prism.

Use a scale of 2 cm to 1 m.



(4 marks)

3 Here are the names of 5 quadrilaterals.

Kite	Rectangle	Rhombus	Square	Parallelogram
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Write the name of the correct shape for each of the descriptions below.

(i) All four sides are equal in length.
All four of the angles are identical.

[1]

(ii) There are two pairs of parallel sides.
The angles opposite each other are identical.
There are no lines of symmetry.

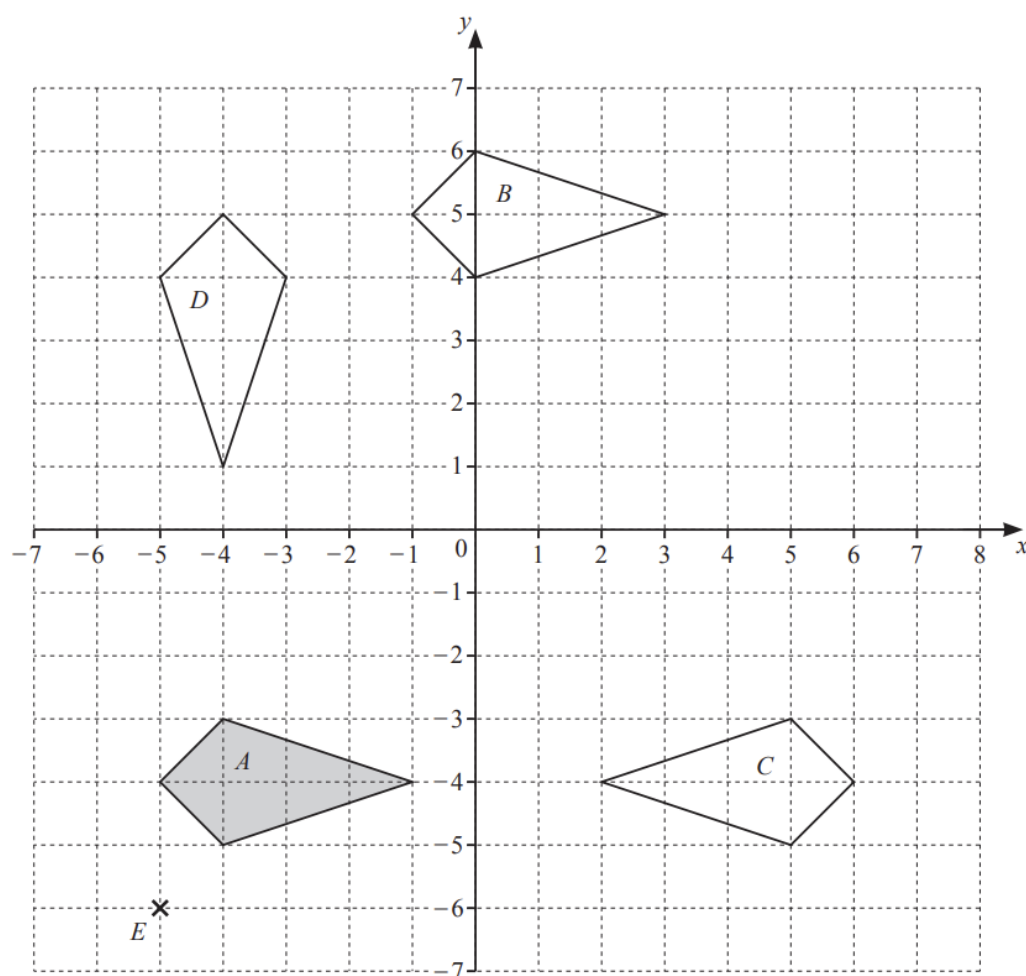
[1]

(iii) All four of the sides have the same length.
None of the angles are 90° .

[1]

(3 marks)

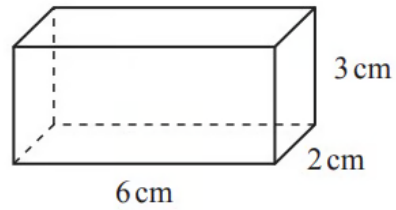
4 The grid shows a point E and four quadrilaterals, A , B , C and D .



Write down the mathematical name of shape A .

(1 mark)

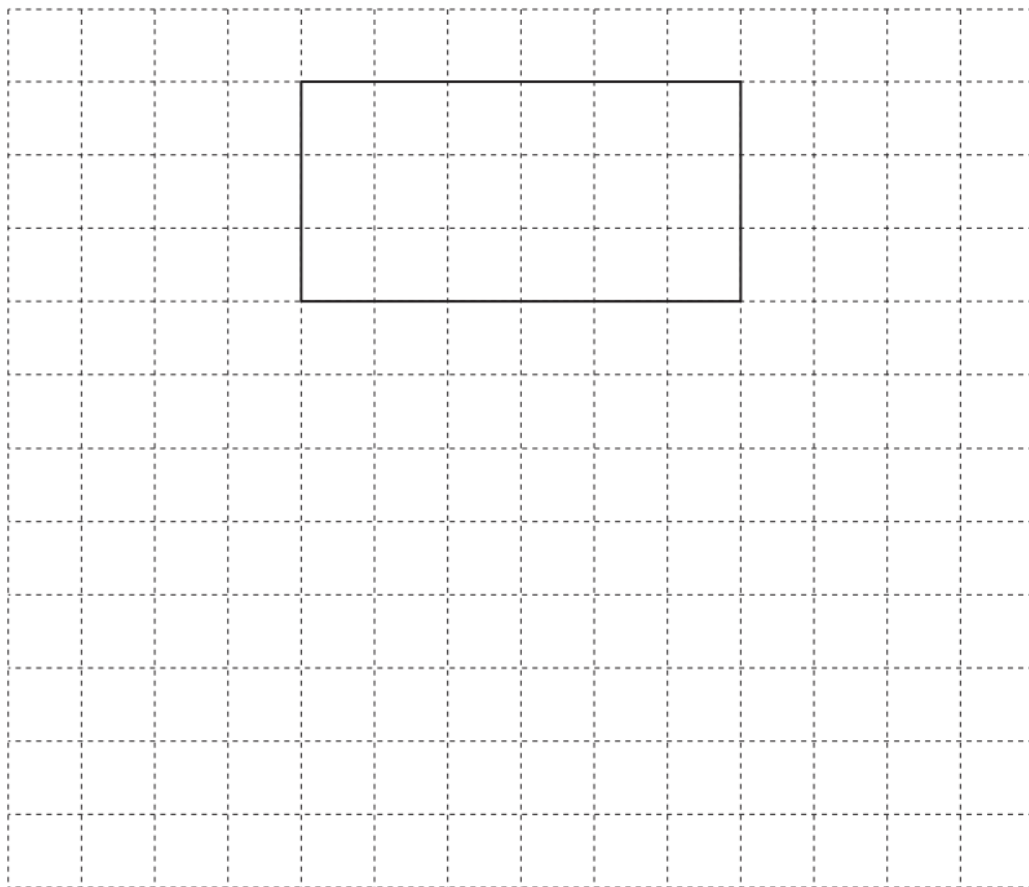
5



NOT TO
SCALE

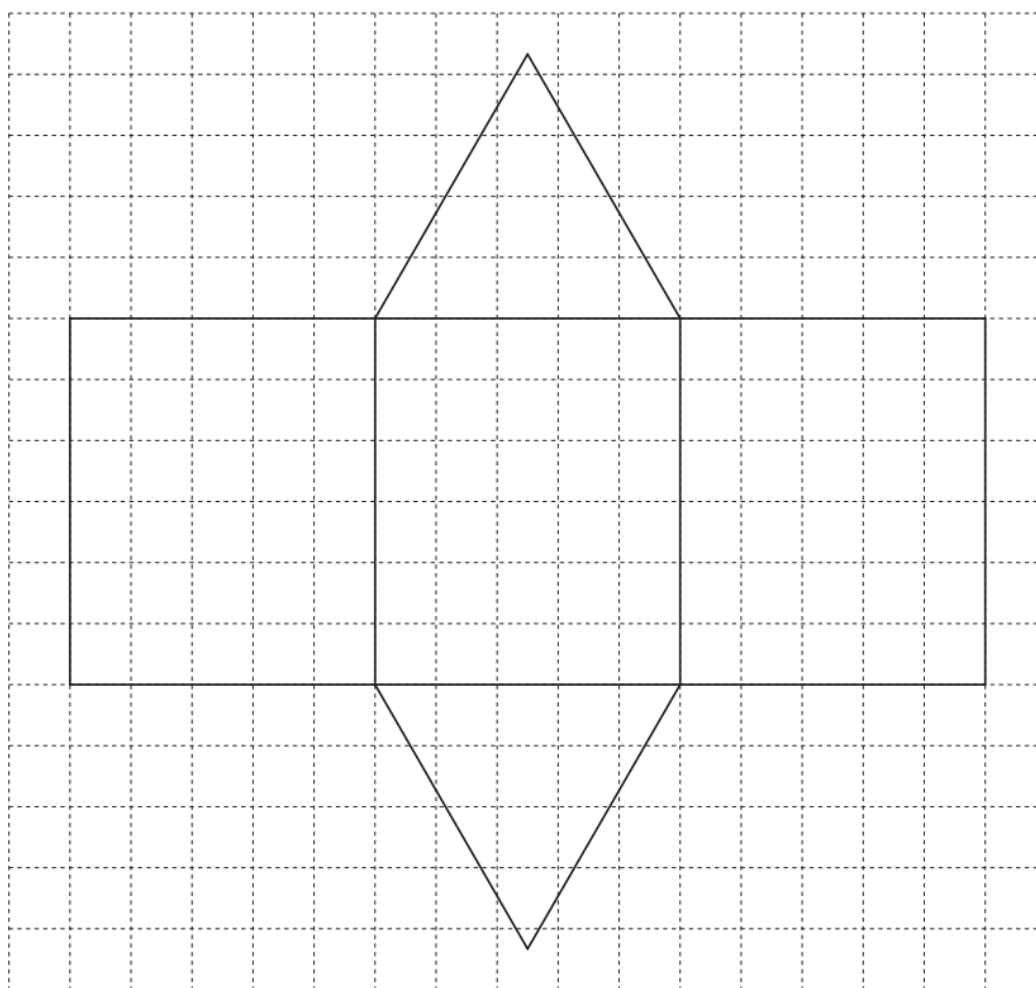
The diagram shows a cuboid.

On the 1 cm^2 grid, complete the net of the cuboid.
One face has been drawn for you.



(3 marks)

6 The diagram shows the net of a triangular prism on a 1cm^2 grid.



Write down the mathematical name for the type of triangle shown on the grid.

(1 mark)

7 (a) Complete each statement.

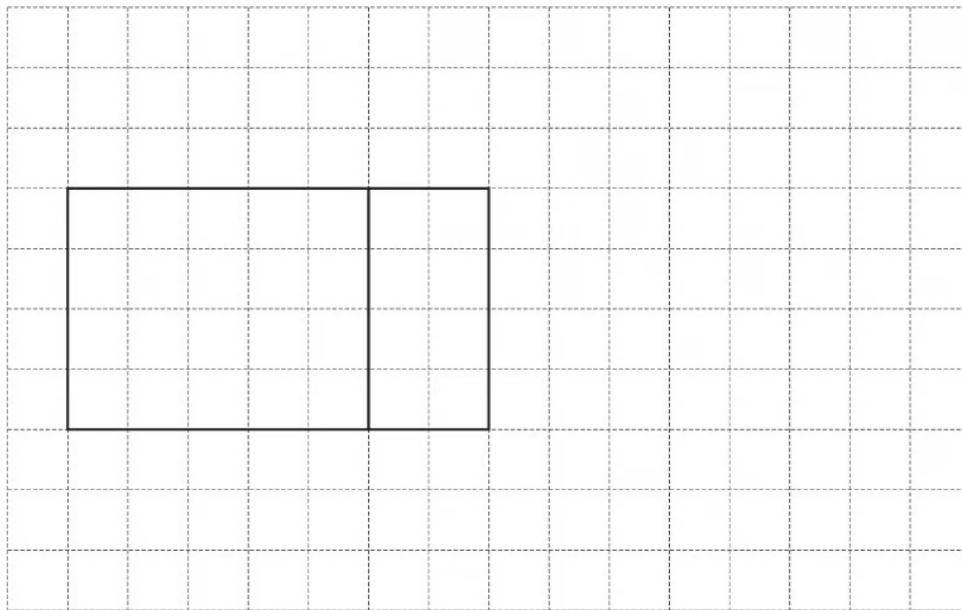
A quadrilateral with only one pair of parallel sides is called a

(1 mark)

(b) An angle greater than 90° but less than 180° is called

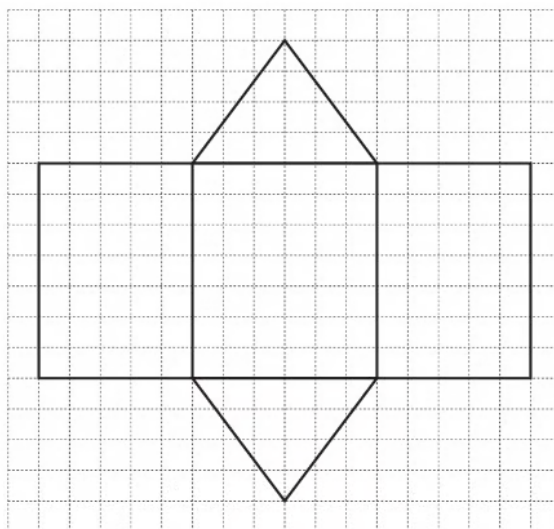
(1 mark)

8 On the 1cm^2 grid, complete the net of this box.



(2 marks)

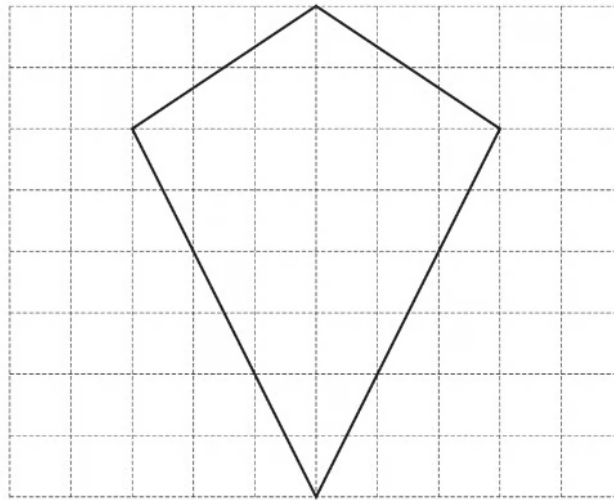
9 The diagram shows a net of a solid.



Write down the mathematical name of the solid.

(1 mark)

10

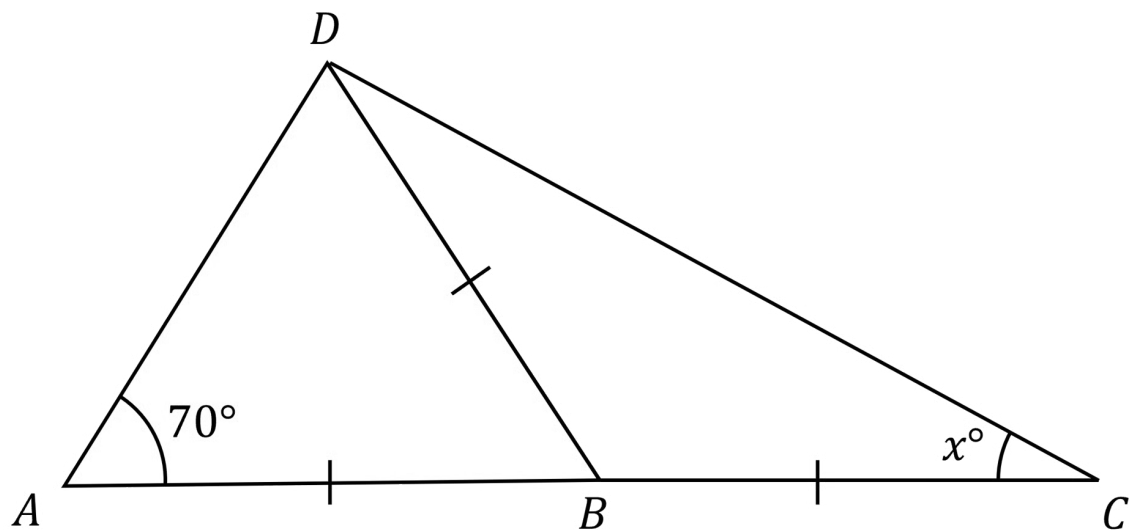


The diagram shows a quadrilateral on a 1 cm^2 grid.

Write down the mathematical name of this quadrilateral.

(1 mark)

11



ABC is a straight line.

The lines AB , BC , and BD are all the same length.

Angle $DAB = 70^\circ$.

Work out the size of the angle marked x .

(4 marks)

Hard Questions

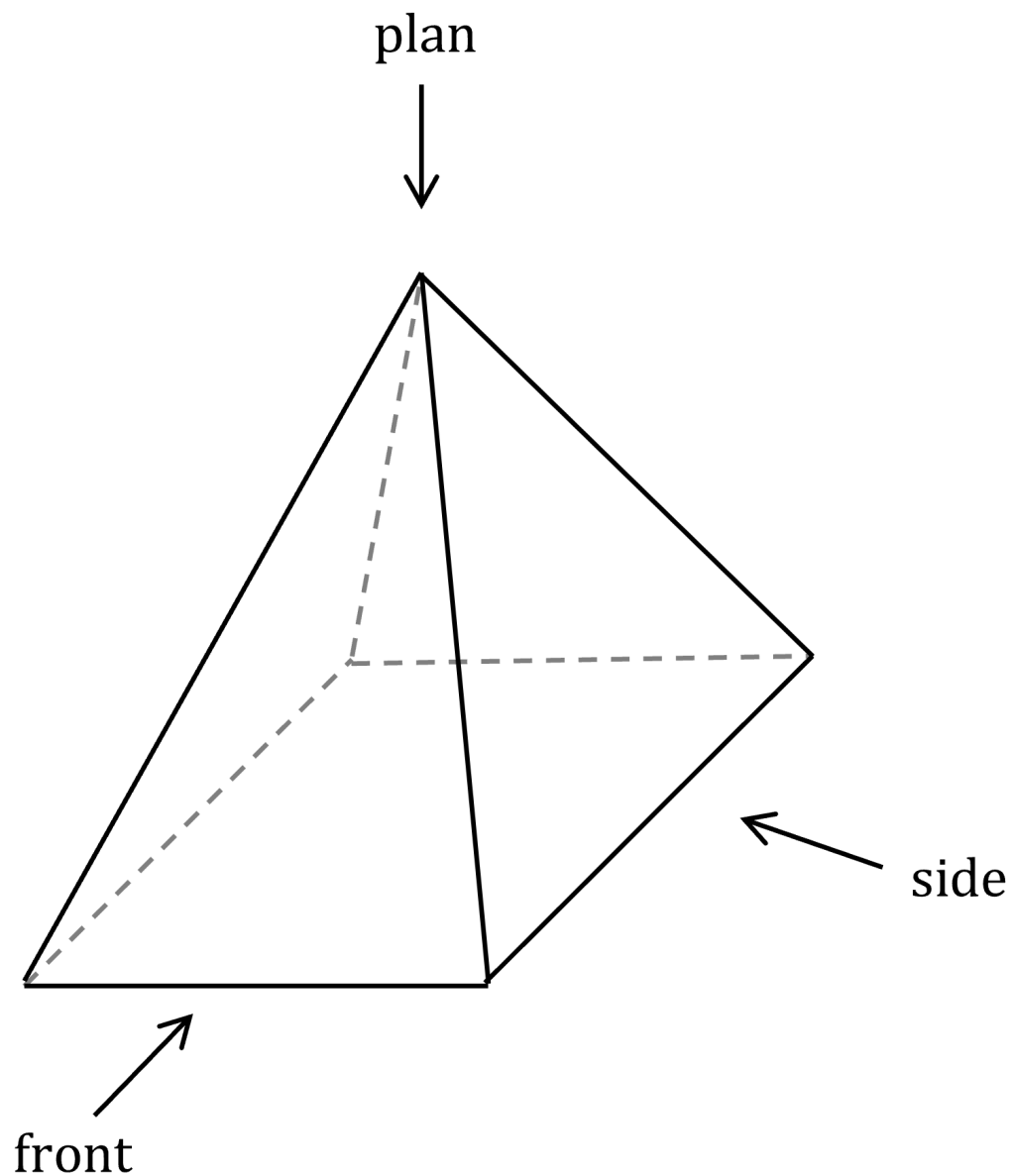
1 (a) A square-based right pyramid has a base with sides of length 4 cm.

The sides of the pyramid are isosceles triangles.

The vertical height of the pyramid is 5 cm.

Sketch the plan, front, and side elevations of the pyramid.

Label the dimensions on your diagram.



(4 marks)

- (b) The perpendicular height of each triangular face is 5.4 cm.

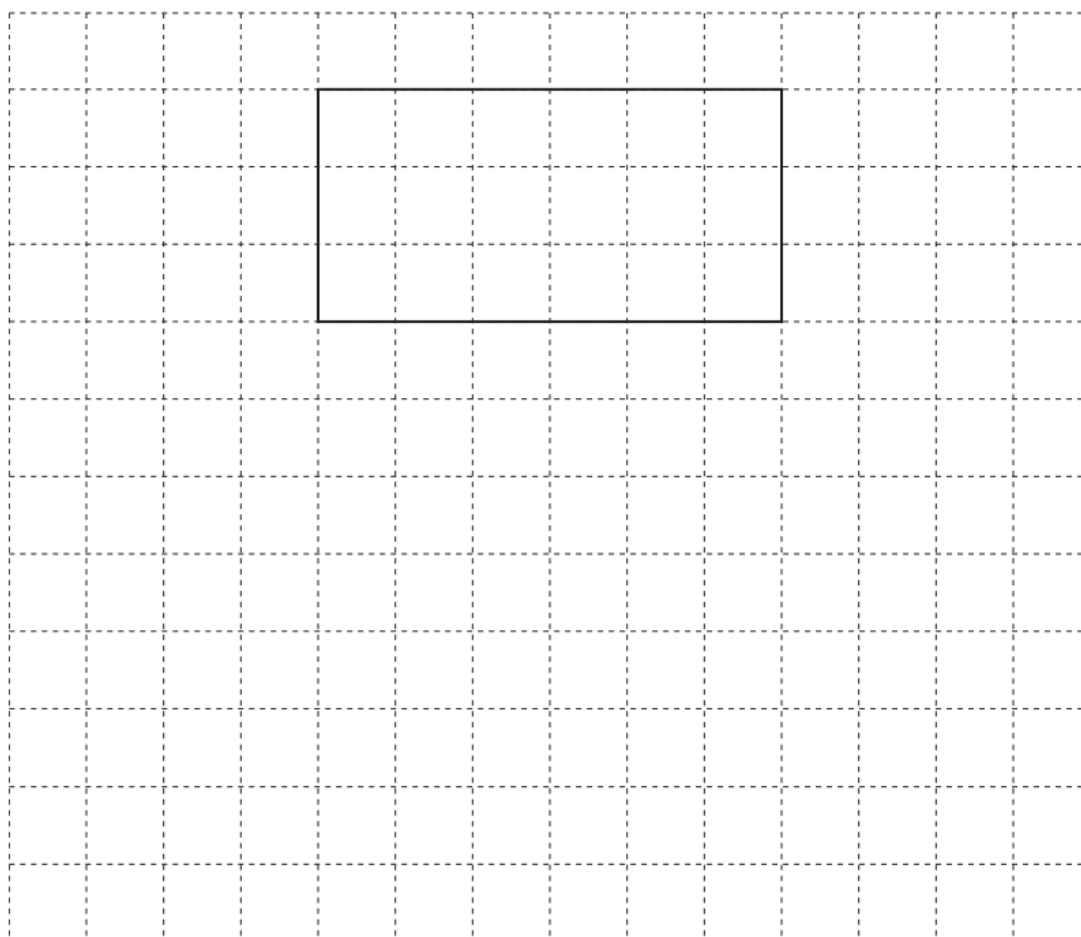
Calculate the surface area of the pyramid.

(3 marks)

2 A cuboid measures 6 cm by 3 cm by 1 cm.

i) On the 1 cm^2 grid, draw an accurate net of this cuboid.

One face has been drawn for you.



[3]

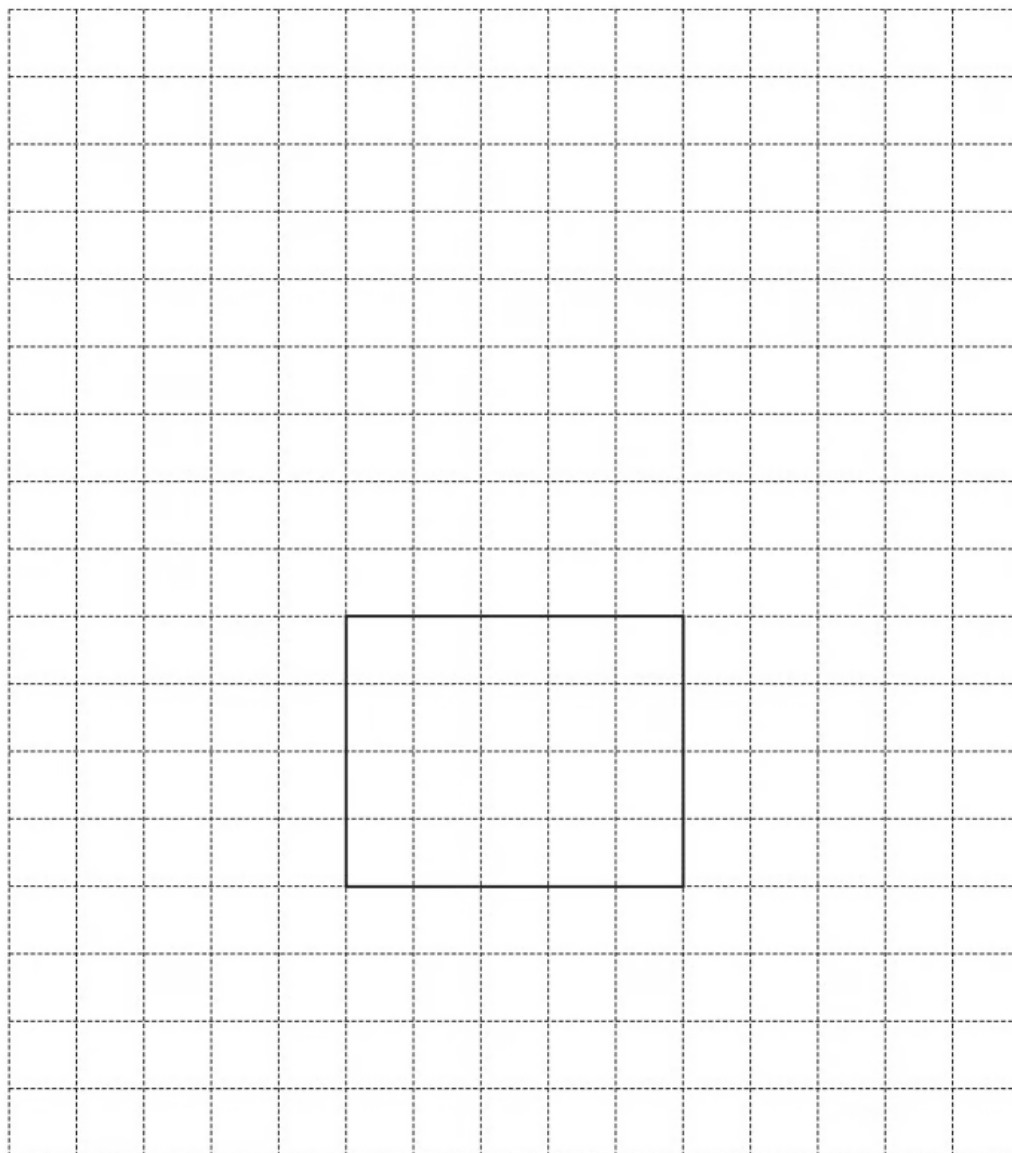
ii) Calculate the surface area of the cuboid.

..... cm^2 [2]

(3 marks)

3 (a) A cuboid has length 5 cm, width 4 cm and height 3 cm.

On the 1 cm^2 grid, complete the net of the cuboid.
One face has been drawn for you.



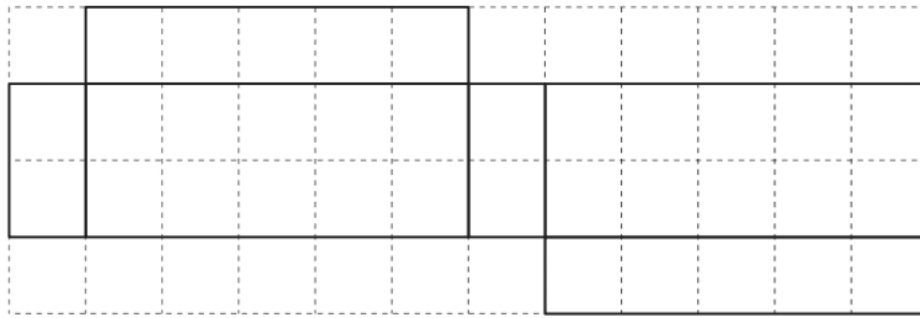
(3 marks)

(b) Find the volume of the cuboid.

..... cm^3

(2 marks)

4 The diagram shows the net of a solid on a 1cm^2 grid.



i) Write down the mathematical name for the solid.

[1]

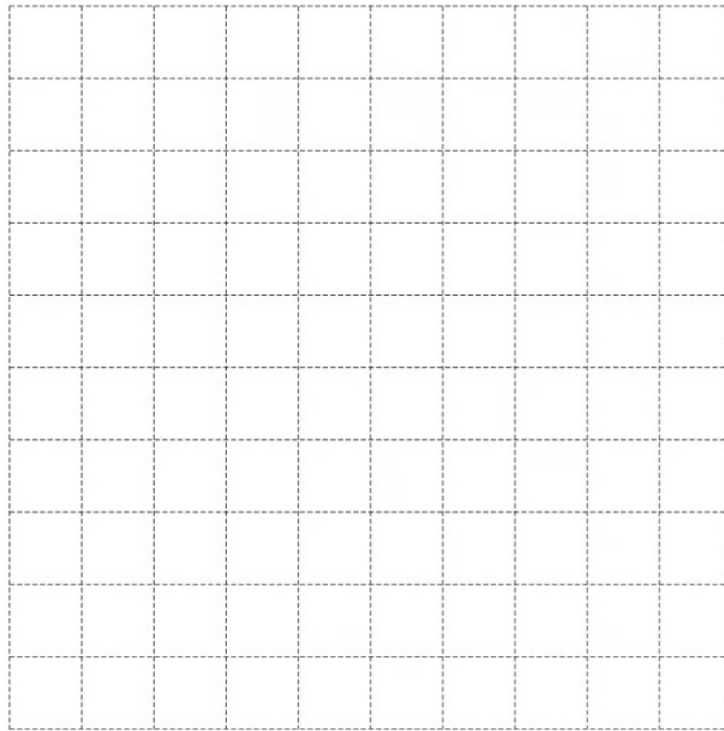
ii) Work out the volume of the solid.

..... cm^3 [2]

(3 marks)

5 A cuboid has length 3 cm, width 2 cm and height 1 cm.

On the 1 cm^2 grid, draw a net of the cuboid.



(3 marks)

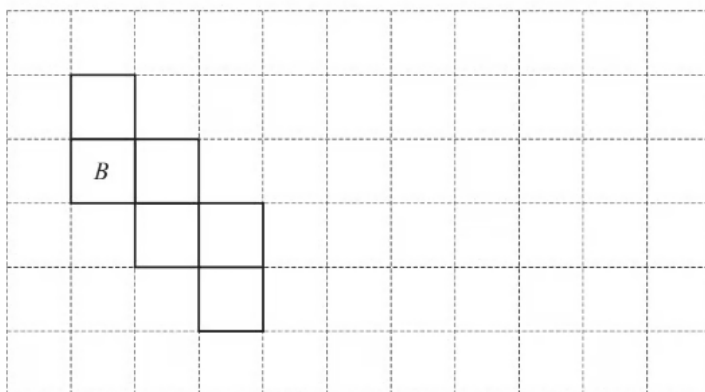
- 6** A cuboid measures 6cm by 3cm by 2 cm.

On this 1cm^2 grid, draw a net of the cuboid.



(3 marks)

7



The diagram shows a net of a cube.

i) The square labelled B is the base.

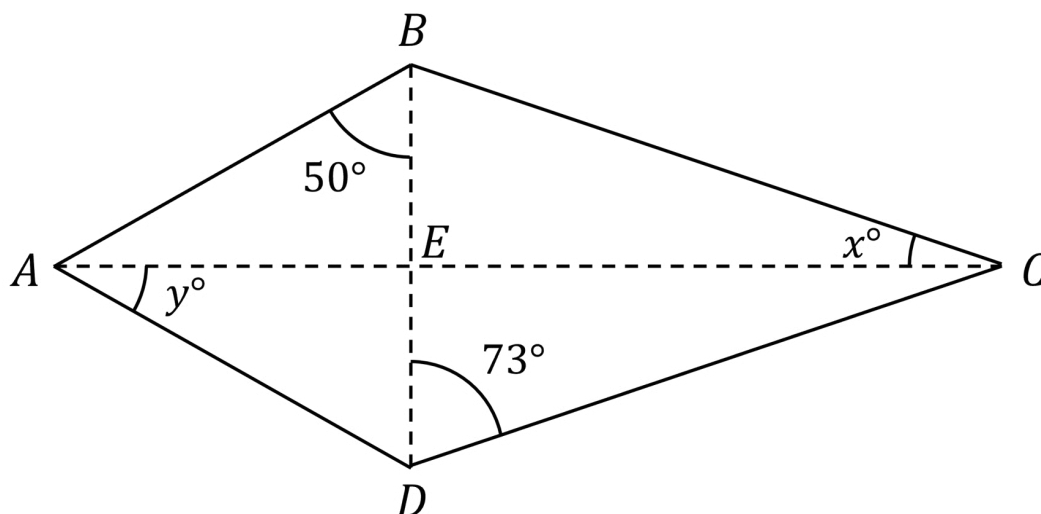
Write the letter T in the square that is the top of the cube.

[1]

ii) On the grid, draw a **different** net of this cube.

[1]
(2 marks)

8 The diagram shows the kite, $ABCD$.

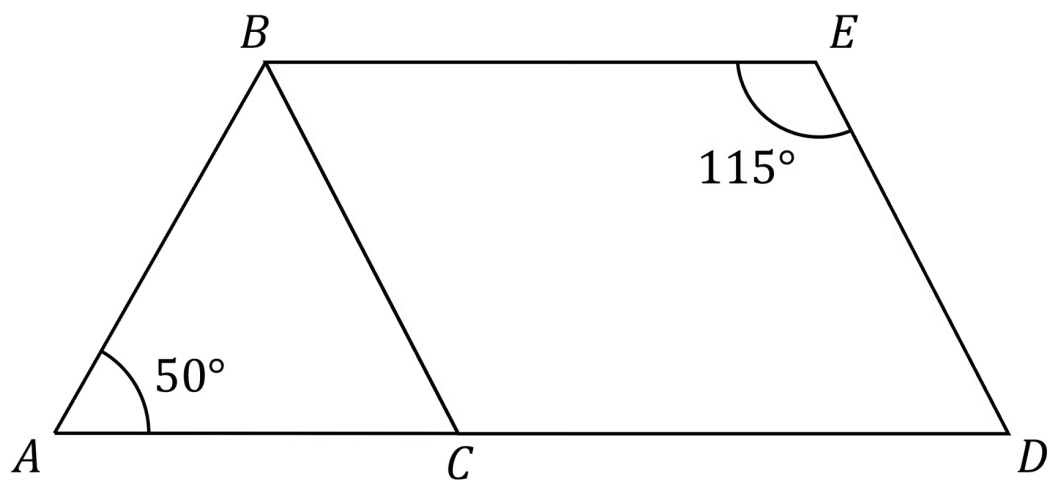


The lengths BC and CD are equal.

Find the values of x and y .

(5 marks)

9



ACD is a straight line.

ABC is a triangle.

$BCDE$ is a parallelogram.

Show that triangle ABC is an isosceles triangle. Give a reason for each stage of your working.

(7 marks)