

5.2

Properties of Shapes

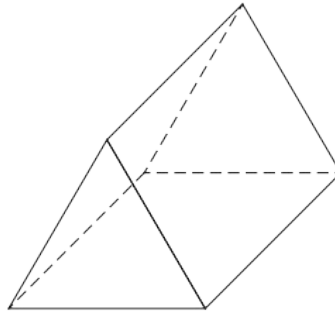
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BSc/MSc/PGCE Mathematics

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3 (i) Write down the mathematical name of this 3-D shape.



(ii) How many faces does the shape have?

.....

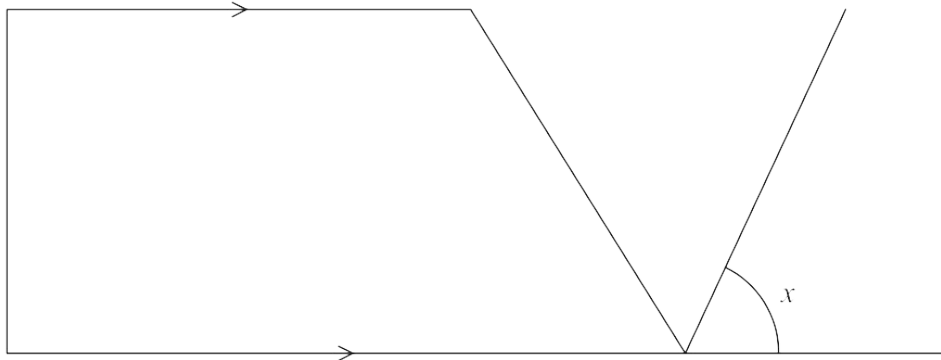
(iii) How many vertices does the shape have?

.....

.....

(Total for Question 3 is 3 marks)

4



(a) On the diagram, mark a right angle with the letter *R*.

(1)

There is a quadrilateral in the diagram.

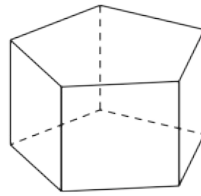
(b) Write down the mathematical name of this quadrilateral.

.....

(1)

(c) Measure the size of angle *x*.

7 The diagram shows a 3-D shape.



(a) Write down the mathematical name of the shape.

.....
(1)

(b) How many faces has the shape?

.....
(1)

(c) How many edges has the shape?

.....
(1)

(Total for Question 7 is 3 marks)

4 Here are five road signs.



A



B



C



D



E

One of these five road signs has one line of symmetry.

(a) Write down the letter of this road sign.

.....
(1)

One of these five road signs has an order of rotational symmetry greater than 1

(b) (i) Write down the letter of this road sign.

.....
(2)

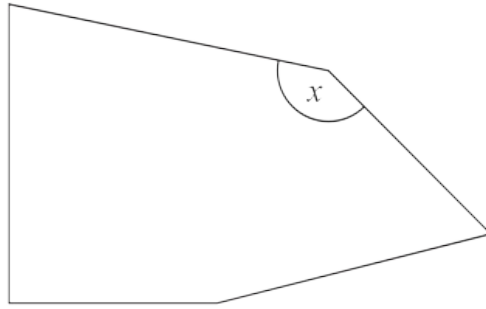
(ii) Write down the order of rotational symmetry of this road sign.

.....
(1)

Road sign E is in the shape of a polygon with 8 sides.

(c) Write down the name of a polygon with 8 sides.

3 Here is a pentagon.

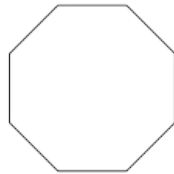


acute	obtuse	reflex	right
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(a) Write down the word from the box that describes the angle marked x .

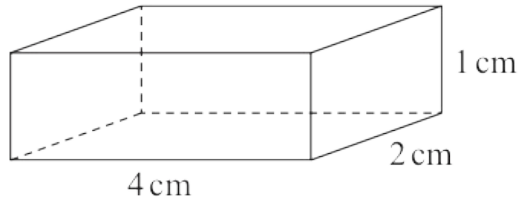
..... angle
(1)

(b) Write down the mathematical name of the following polygon.



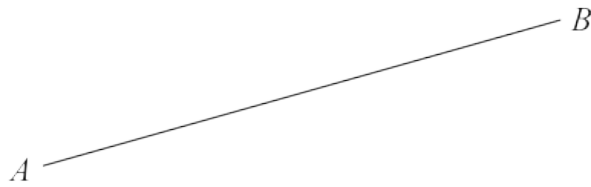
.....
(1)

6 (a) Write down the mathematical name of this 3-D shape.



.....
(1)

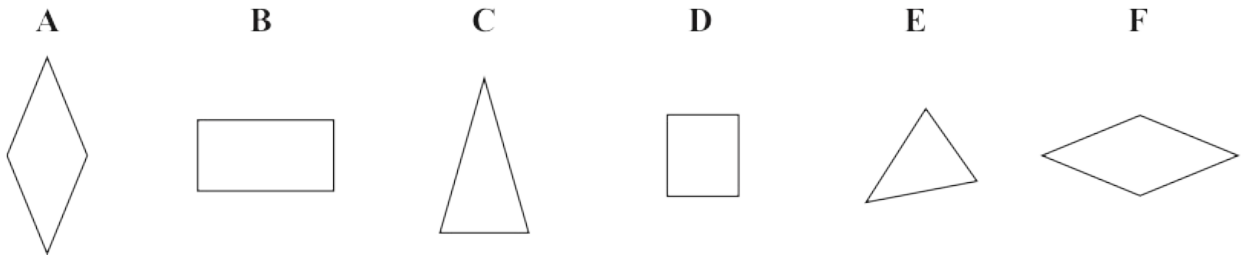
(b)



Measure the length of AB .

..... cm
(1)

Here are six shapes.

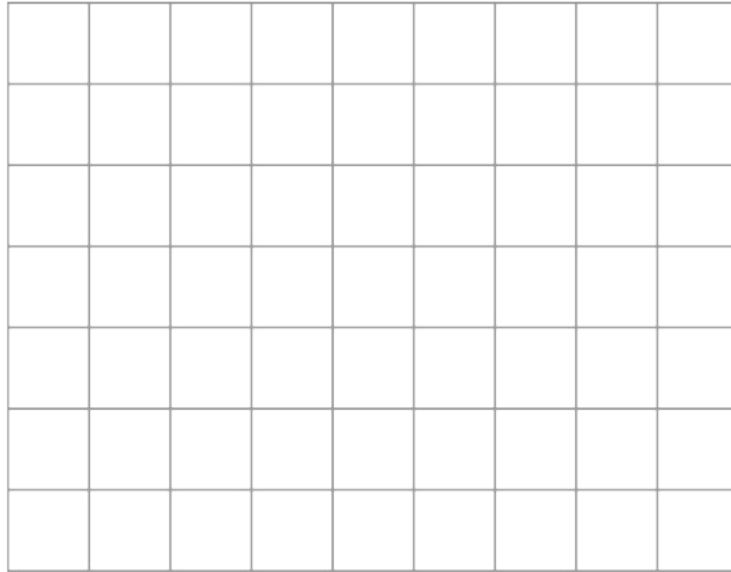


Two of these shapes are congruent.

(c) Write down the letters of these two shapes.

..... and
(1)

3 (a) On the grid below, draw a kite.

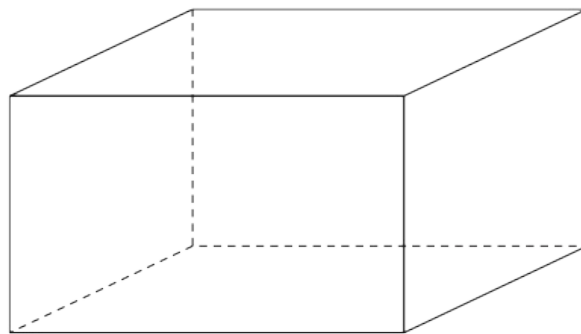


(1)

(b) Write down the mathematical name of an 8-sided polygon.

.....
(1)

Here is a solid prism.

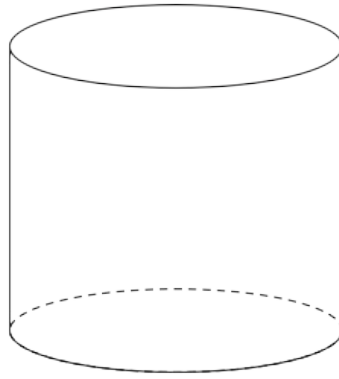


(c) (i) Write down the mathematical name of this prism.

(ii) How many vertices does the prism have?

.....
(2)

3 (a) Write down the mathematical name of this 3-D shape.



.....
(1)

Here is a solid cuboid.

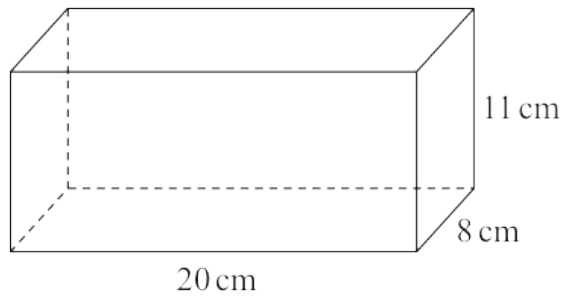


Diagram **NOT**
accurately drawn

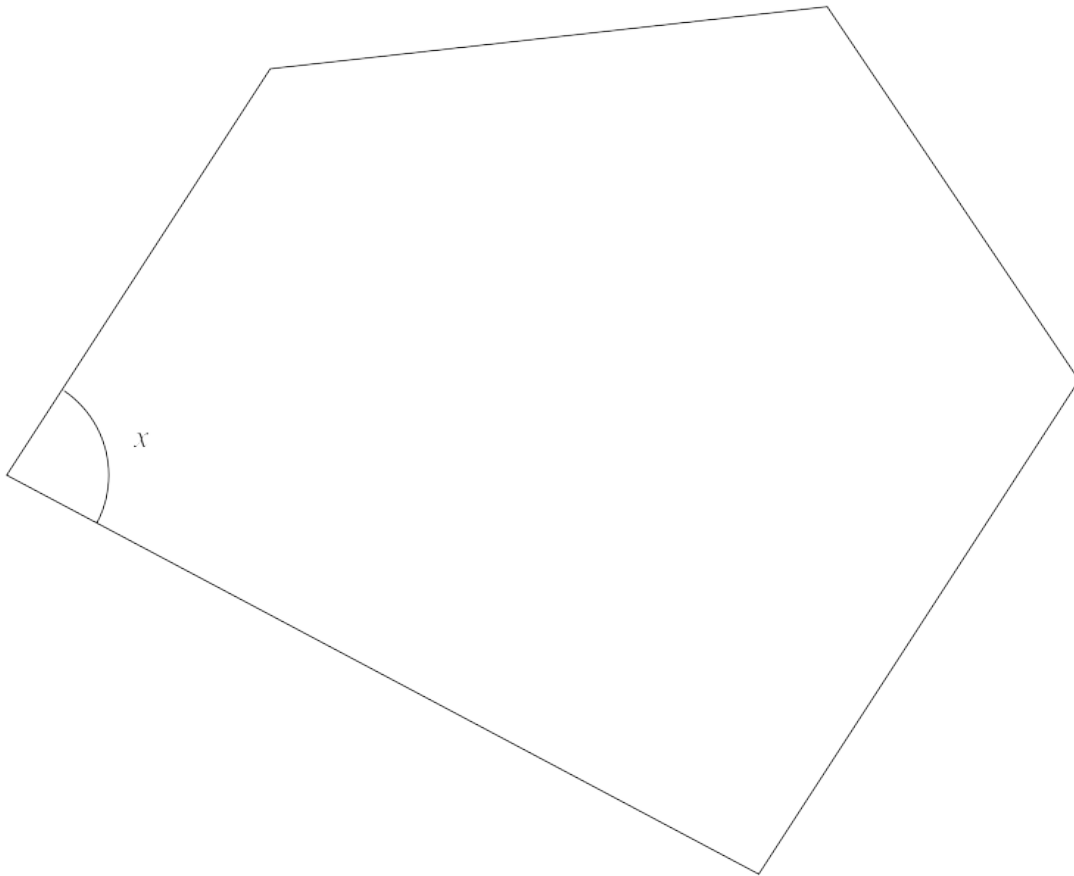
(b) (i) How many faces has the cuboid?

.....

(ii) How many vertices has the cuboid?

.....
(2)

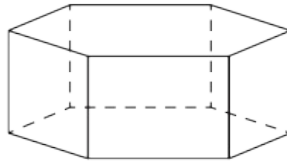
4 Here is a polygon with five sides.



(a) Write down the mathematical name of a polygon with five sides.

.....
(1)

6 The diagram shows a solid prism.



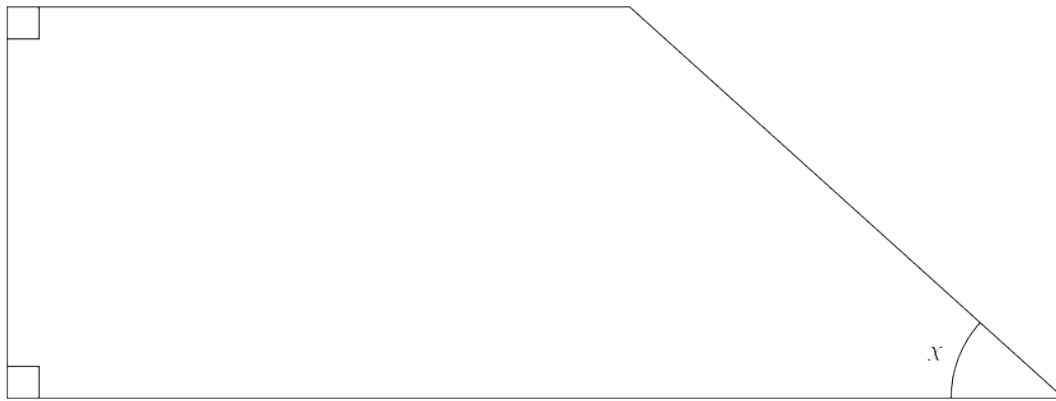
(a) How many vertices has the prism?

.....
(1)

(b) How many faces has the prism?

.....
(1)

3 Here is a quadrilateral.



(a) What is the mathematical name of this quadrilateral?

.....
(1)

(c) On the quadrilateral, mark with arrows (\gg) a pair of parallel lines.

(1)

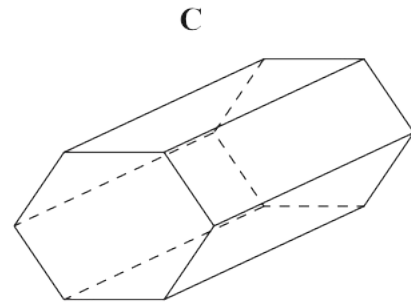
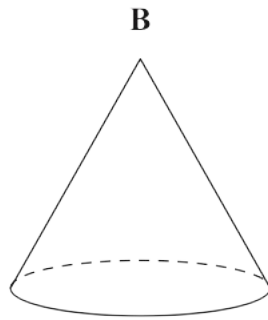
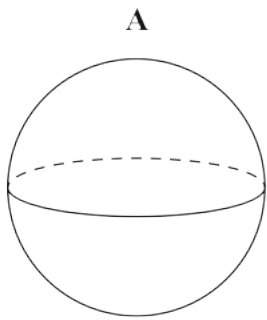
The quadrilateral has four angles.

(d) How many of these angles are right angles?

.....
(1)

4 Here are three 3D shapes, **A**, **B** and **C**.

(a) Write down the mathematical name for each of these 3D shapes.



(i)

(ii)

(iii)

(3)

(b) (i) How many faces does shape **C** have?

.....

(ii) How many vertices does shape **C** have?

.....

(2)

Here is a solid prism made from bricks.
The bricks are identical triangular prisms.

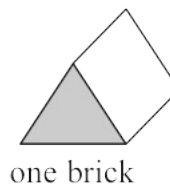
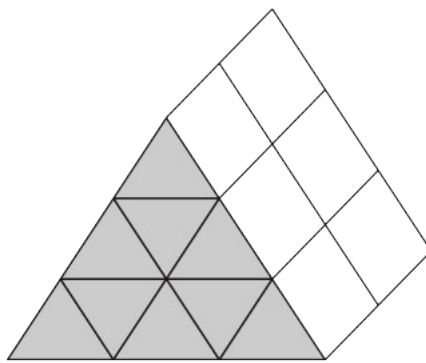


Diagram **NOT**
accurately drawn

The volume of the prism is 54 cm^3

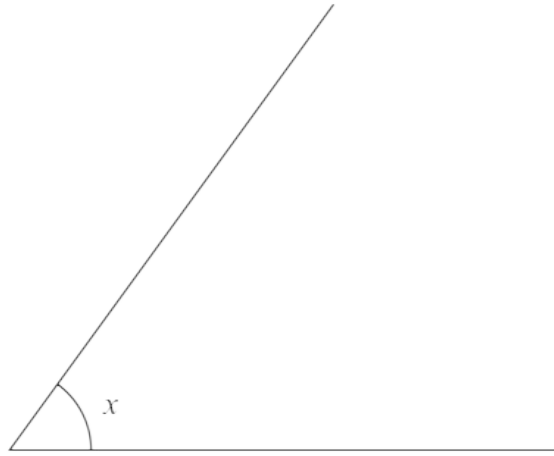
(c) Work out the volume of each brick.

..... cm^3

(2)

2 (a) Write down the order of rotational symmetry of a square.

.....
(1)

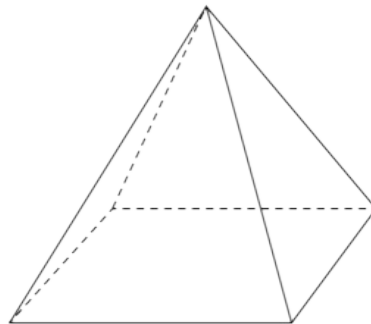


(b)

(ii) Write down the mathematical name of this type of angle.

.....
(2)

Here is a 3-D shape.



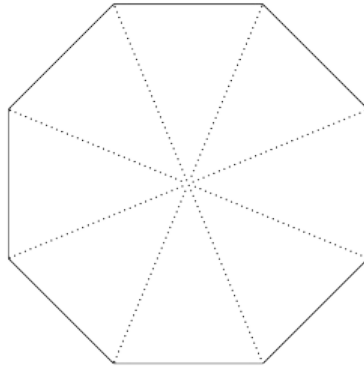
(c) (i) Write down the mathematical name of this 3-D shape.

(ii) How many edges does this shape have?

.....
(2)

1

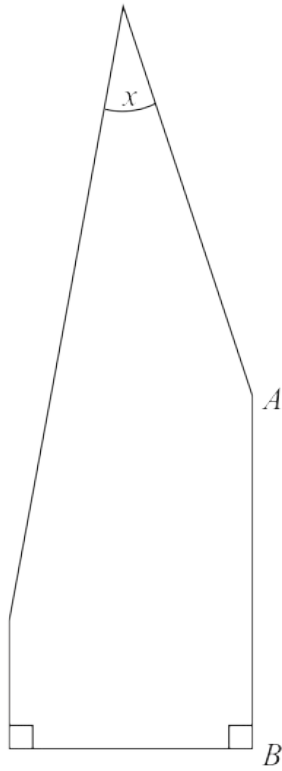
The diagram shows an 8-sided polygon and its diagonals.



(b) Write down the mathematical name of an 8-sided polygon.

.....
(1)

4



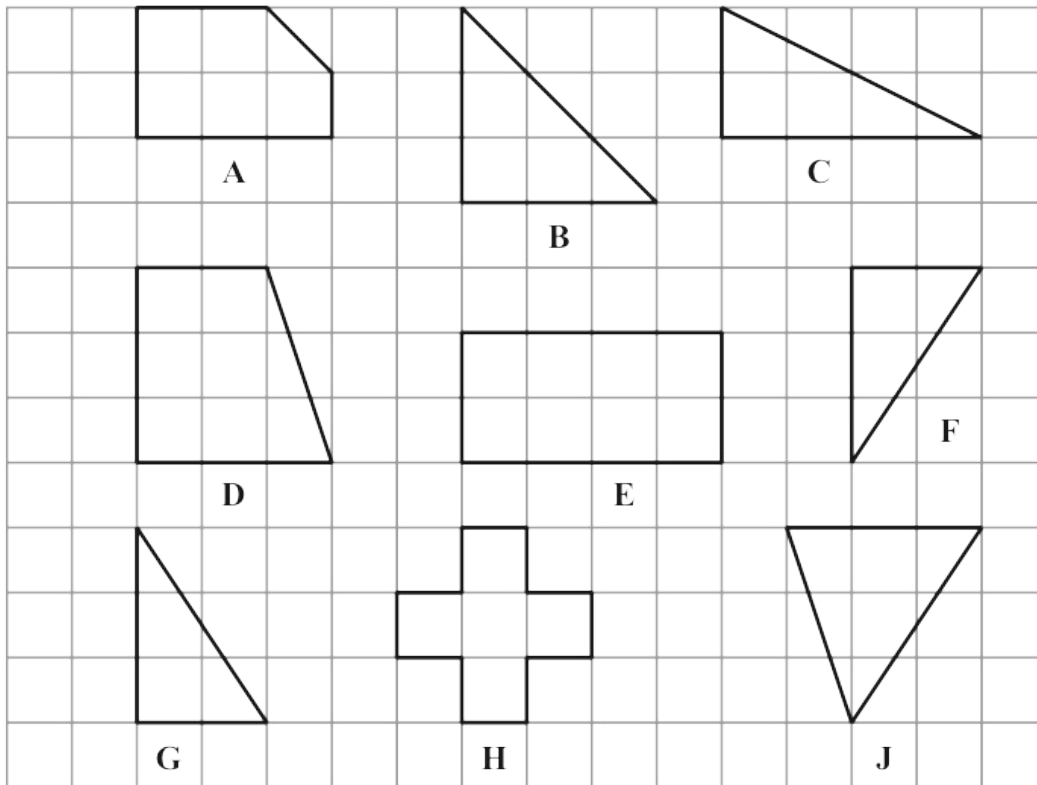
(c) On the diagram, mark with arrows (\gg) a pair of parallel sides.

(1)

(d) Write down the mathematical name of a 5-sided polygon.

.....
(1)

6 Here are nine shapes drawn on a grid of squares.



Shape **D** is a quadrilateral.

(a) What is the mathematical name of this quadrilateral?

.....
(1)

One of the shapes is congruent to shape **G**

(b) Write down the letter of this shape.

.....
(1)

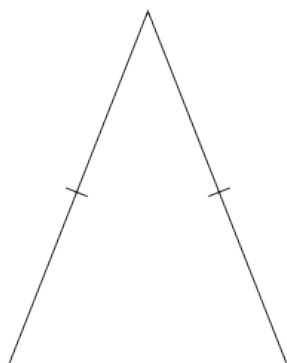
(c) Write down the order of rotational symmetry of shape **H**

.....
(1)

(d) How many lines of symmetry has shape **E**?

.....
(1)

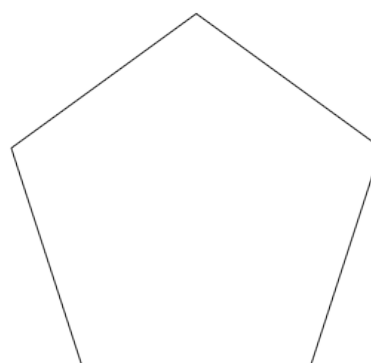
2 Here are three shapes.



A



B



C

Shape **A** is a triangle.

(a) Write down the mathematical name for this type of triangle.

.....
(1)

Shape **B** is a rectangle.

(b) On shape **B**, draw its lines of symmetry.

(1)

Shape **C** is a regular polygon.

(c) Write down the order of rotational symmetry of shape **C**.

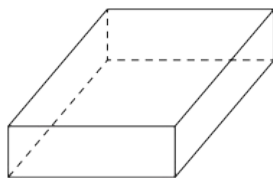
.....
(1)

3 (a) Write down the mathematical name of this 3-D shape.



.....
(1)

Here is a solid prism.

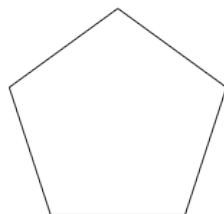


(b) How many edges has the prism?

.....
(1)

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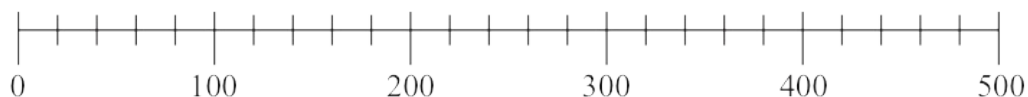
4 Here is a polygon.



(a) Write down the mathematical name of this polygon.

.....
(1)

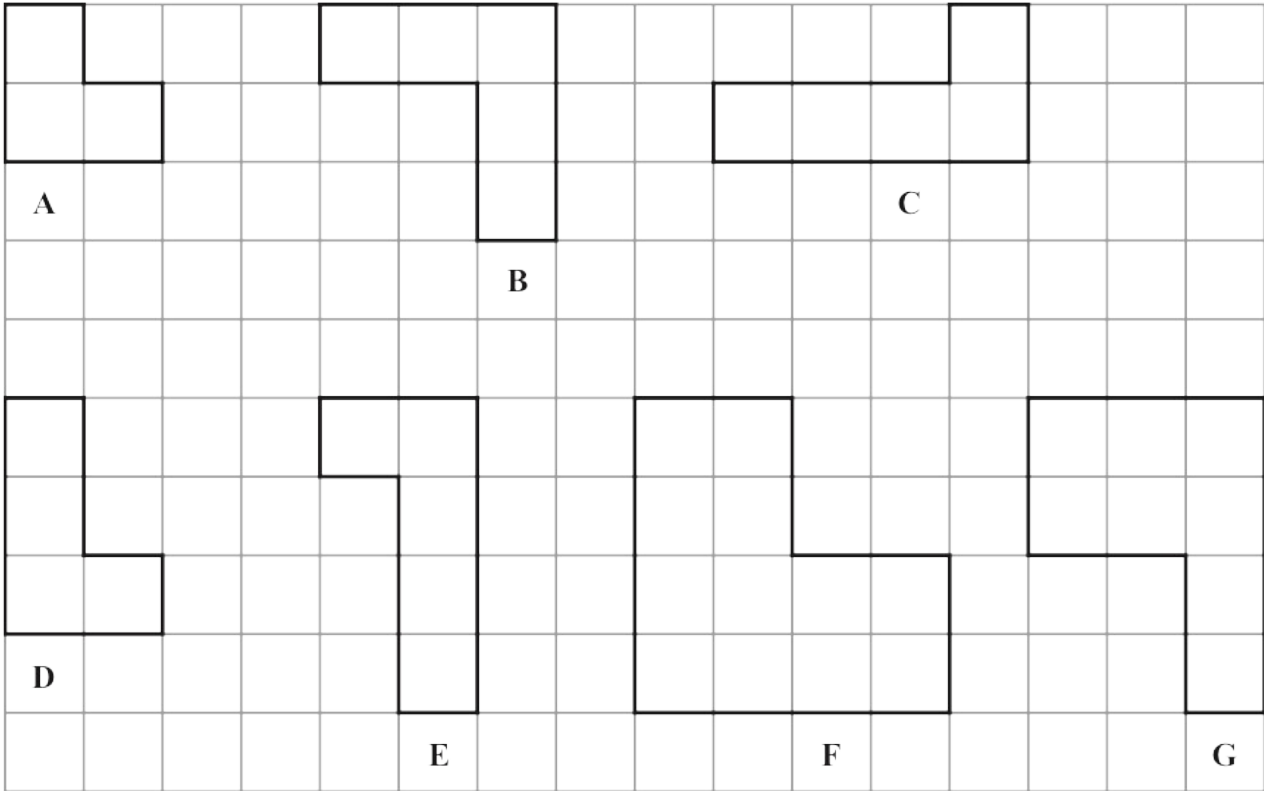
Here is a scale.



(b) On the scale, mark with an arrow (↑) the number 360

(1)

2 Here are seven shapes on a centimetre grid.



(a) Write down the letters of the two shapes that are congruent.

..... and
(1)

Two of the seven shapes are similar but are not congruent.

(b) Write down the letters of these two shapes.

..... and
(1)

Shape **F** has exactly one line of symmetry.

(c) On shape **F** on the grid, draw this line of symmetry.

(1)

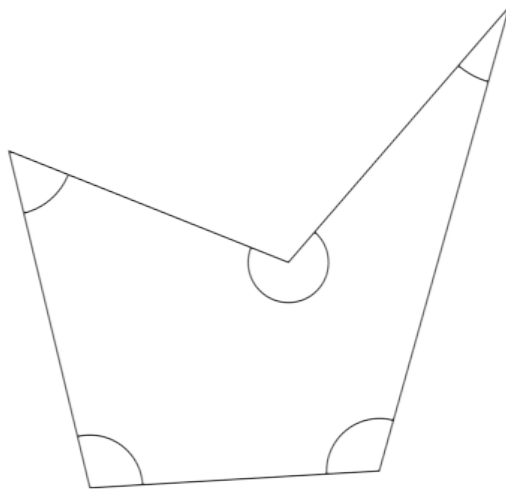
(d) Work out the perimeter of shape **B**.

..... cm
(1)

(e) Work out the area of shape **G**.

..... cm²
(1)

2 Here is a 5-sided polygon.



(a) Write down the mathematical name for a 5-sided polygon.

.....
(1)

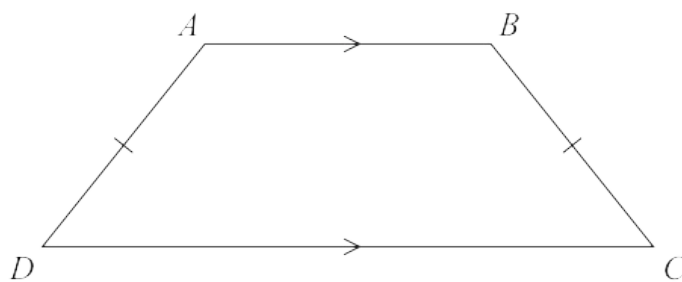
(b) On the diagram, mark with a letter A an acute angle.

(1)

(c) On the diagram, mark with a letter R a reflex angle.

(1)

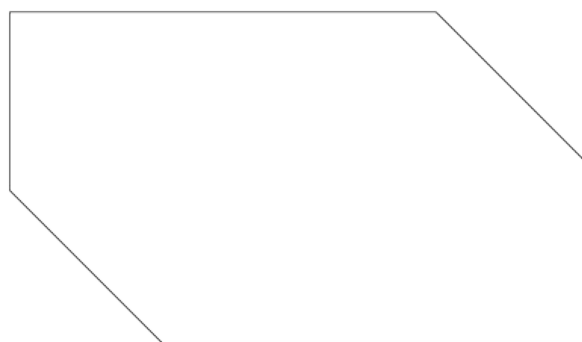
5 The diagram shows the trapezium $ABCD$



(a) How many lines of symmetry has $ABCD$?

.....
(1)

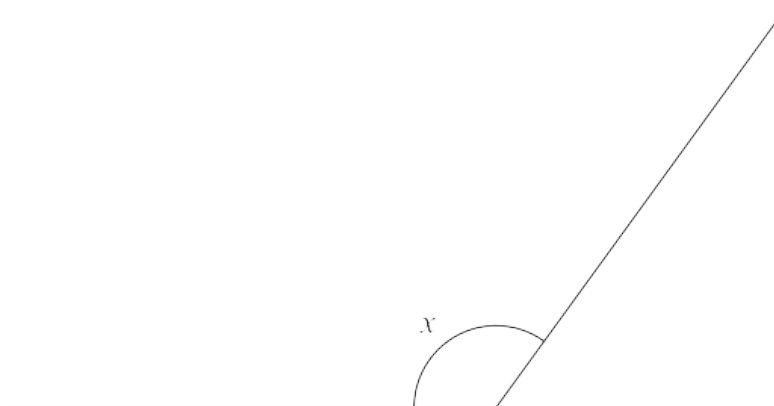
Here is another shape.



(b) Write down the order of rotational symmetry of this shape.

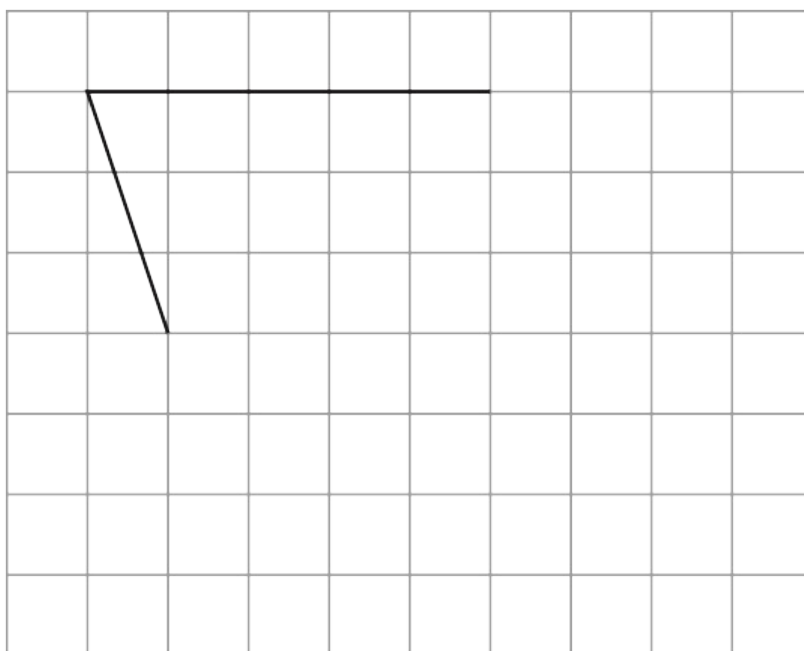
.....
(1)

(c) Find, by measuring, the size of the angle marked x



.....
(1)

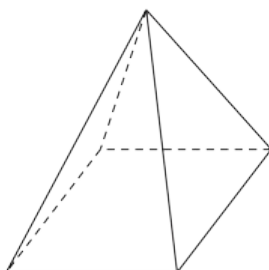
4 Here are two sides of a parallelogram.



(a) On the grid above, complete the parallelogram.

(1)

The diagram shows a 3-D shape.



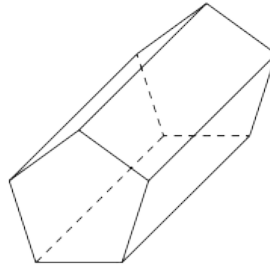
(b) (i) What is the mathematical name of this 3-D shape?

.....
(1)

(ii) How many faces has this shape?

.....
(1)

3 (a) Write down the mathematical name of this 3-D shape.



.....
(1)

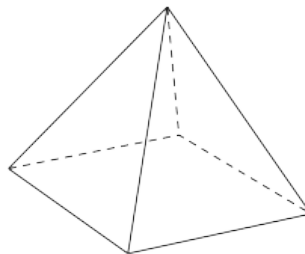
(b) (i) How many faces does this shape have?

.....
(1)

(ii) How many vertices does this shape have?

.....
(1)

Here is a different 3-D shape.



Marie makes a model of the shape.
She uses a length of wire to make each edge of the model.
Each edge of the model is 5 cm long.

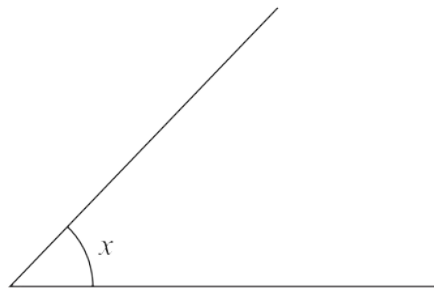
Marie has 70 cm of wire.

(c) What length of wire does she have left after making the model?

..... cm
(2)

3 (a) Write down the mathematical name for an 8-sided polygon.

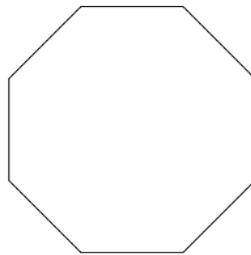
.....
(1)



(b) What type of angle is the angle marked x ?

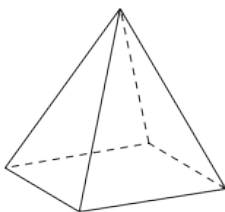
.....
(1)

6 (a) Write down the mathematical name of this polygon.



.....
(1)

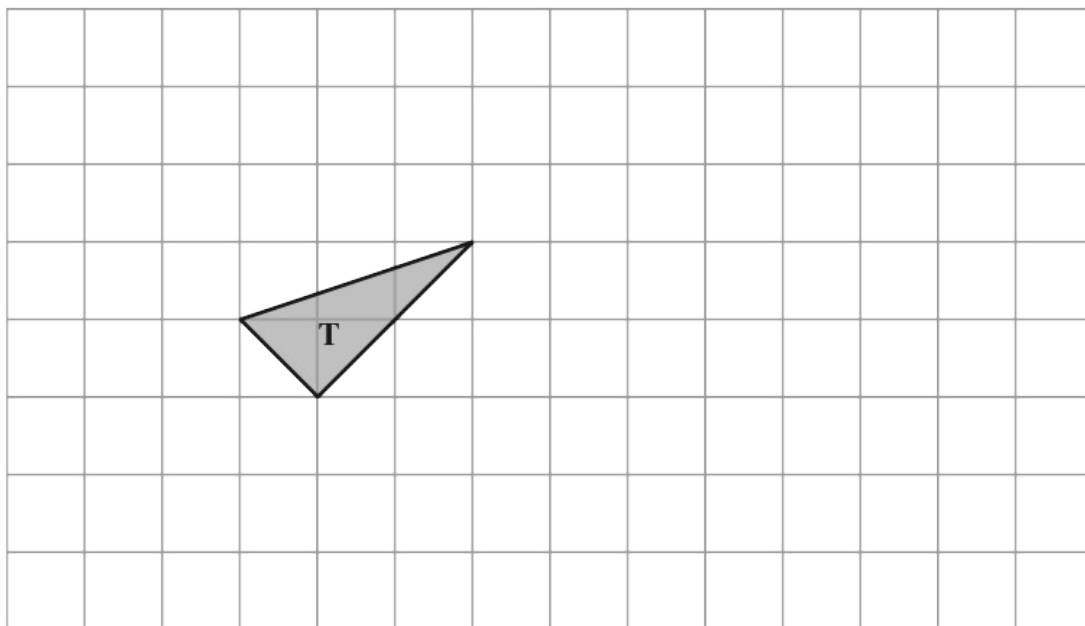
2 Here is a solid shape.



(a) Write down the number of edges of this shape.

.....
(1)

(b) On the grid below, draw a shape that is congruent to shape **T**



(1)

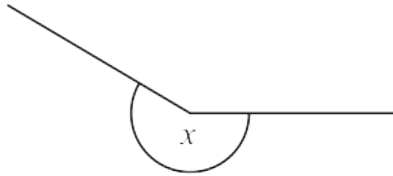
Here is a parallelogram.



(c) Write down the order of rotational symmetry of the parallelogram.

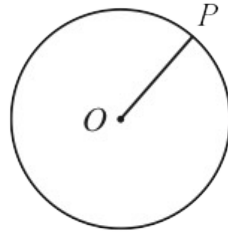
.....
(1)

3 (a)



Write down the mathematical name of the angle marked x

.....
(1)

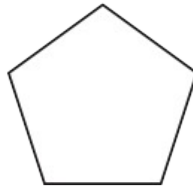


P is a point on a circle with centre O

(b) Write down the mathematical name of the line OP

.....
(1)

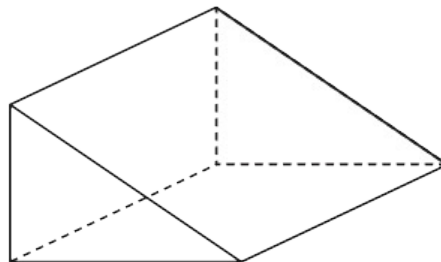
Here is a polygon.



(c) Write down the mathematical name of this polygon.

.....
(1)

Here is a solid prism.



(d) Write down the number of edges of this solid prism.

.....
(1)