



- 1 A triangle has three sides that are all the same length.

What is the name of this type of triangle?

(1 mark)

3 equal sides

equilateral triangle

- 2 a. Write down the number of faces of a cube.

b. Write down the number of vertices of a cube.

(2 marks)

A face is a flat surface of the cube. An edge is where two faces meet, and a vertex is a corner where edges meet. Count the hidden faces and corners too

A cube has 6 square faces

A cube has 8 vertices, one at each corner

- 3 Write down the mathematical name of a polygon with exactly five sides.

(1 mark)

A polygon with five sides is called a pentagon

pentagon

- 4 A 3D solid has exactly one square face and four triangular faces.

a. Write down the mathematical name of this solid.

b. Write down the number of edges of this solid.

(2 marks)

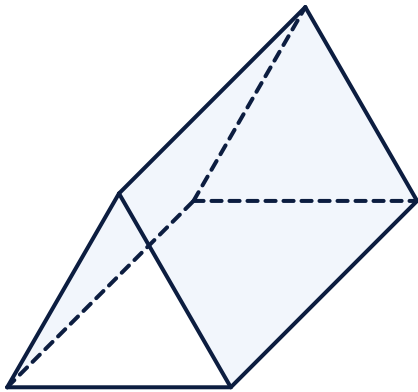
One square face and four triangular faces describes a square-based pyramid

It has 4 edges around the square base and 4 sloping edges up to the apex, so $4 + 4 = 8$ edges

5

Here is a triangular prism.

- Write down the number of faces of a triangular prism.
- Write down the number of edges of a triangular prism.



(2 marks)

A triangular prism has 2 triangular faces and 3 rectangular faces, so 5 faces in total

It has 3 edges on each triangular end and 3 edges joining the two ends, so $3 + 3 + 3 = 9$ edges

6

Triangle P has sides of length 5 cm, 5 cm and 8 cm.

Triangle Q has sides of length 4 cm, 6 cm and 7 cm.

- What is the name of triangle P ?
- What is the name of triangle Q ?

(2 marks)

a)

two sides the same (5 and 5)

isosceles

b)

all three sides different

scalene

7 $ABCD$ is a rectangle. The corners A , B , C and D are in order going round the rectangle.

- Write down the name of a side that is parallel to AB .
- Write down the name of a side that is perpendicular to AB .

(2 marks)

a)

opposite side to AB is DC

DC

b)

sides next to AB meet at 90°

BC (or AD)

8 A solid shape has one curved surface, one flat circular face and one vertex.

- What is the name of this solid?
- How many faces does a triangular prism have?

(2 marks)

a)

cone

b)

2 triangles + 3 rectangles

$$2 + 3 = 5$$

5 faces

9 a. A 3D solid has one curved surface, no edges and no vertices. Write down the mathematical name of this solid.

b. A different 3D solid has two flat circular faces and one curved surface. Write down the mathematical name of this solid.

(2 marks)

A single curved surface with no edges or vertices is a sphere

Two flat circular faces joined by a curved surface is a cylinder

10

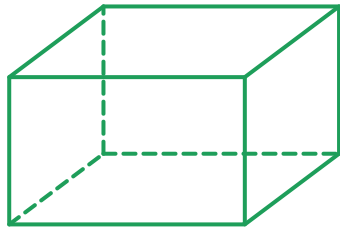
- a. A quadrilateral has exactly one pair of parallel sides. Write down the mathematical name of this quadrilateral.
- b. A different quadrilateral has two pairs of parallel sides. All four of its sides are equal in length but none of its angles are right angles. Write down the mathematical name of this quadrilateral. (2 marks)

A quadrilateral with exactly one pair of parallel sides is a trapezium

A quadrilateral with two pairs of parallel sides and four equal sides is a rhombus (it would only be a square if it also had right angles)

11

- a. A 3D solid has exactly one circular face and one vertex. Write down the mathematical name of this solid.
- b. In the space below, draw a sketch of a cuboid.



(2 marks)

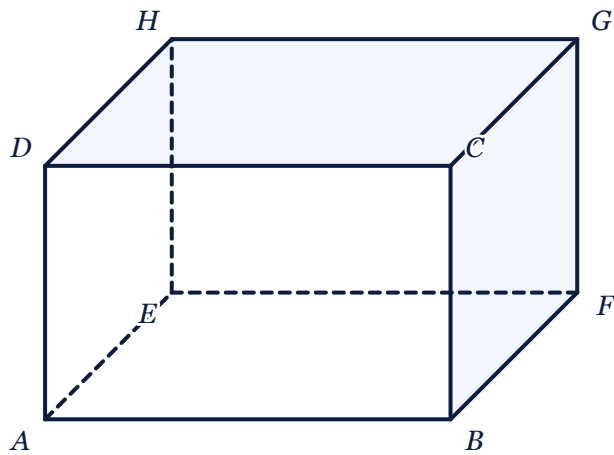
One circular face and one vertex (the apex) describes a cone

A cuboid sketch should show a box shape with 6 rectangular faces, usually drawn with hidden edges dashed

12

The diagram shows a solid with corners labelled A to H .

- Write down the mathematical name of the solid.
- How many edges does the solid have?
- The front face is $ABCD$. Write down the corners of the face opposite it.



(3 marks)

a)

6 rectangular faces

cuboid

b)

4 front + 4 back + 4 joining

$$4 + 4 + 4 = 12$$

12

c)

Front is $ABCD$, so back is the matching corners

$EFGH$

13 In triangle PQR , angle $Q = 90^\circ$ and angle $P = \text{angle } R$.

- What type of triangle is PQR ?
- Work out the size of angle P .

(3 marks)

a)

one angle 90° and two angles equal

right-angled isosceles

b)

$$P + R = 180^\circ - 90^\circ$$

$$P + R = 90^\circ$$

$$P = 90^\circ \div 2$$

$$P = 45^\circ$$

14

- A quadrilateral has two pairs of equal adjacent sides and exactly one line of symmetry. Write down the mathematical name of this quadrilateral.
- A 3D solid has six faces. Every face is a square. Write down the mathematical name of this solid.

(2 marks)

Two pairs of equal adjacent sides with one line of symmetry describes a kite

A solid with six square faces is a cube

15

A prism has a cross-section that is a pentagon.

- Write down the number of faces of the prism.
- Write down the number of edges of the prism.
- Write down the number of vertices of the prism.

(3 marks)

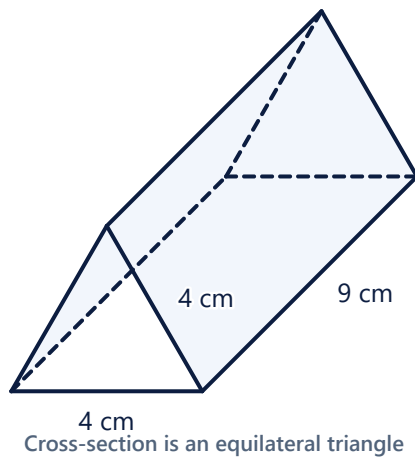
A pentagonal prism has 2 pentagonal faces and 5 rectangular faces, so 7 faces

Each pentagonal end has 5 edges and there are 5 edges joining the ends, so $5 + 5 + 5 = 15$ edges

Each pentagonal end has 5 vertices, so $5 + 5 = 10$ vertices

16

A prism has a cross-section that is an equilateral triangle with sides of length 4 cm.
The length of the prism is 9 cm.
Work out the total length of all the edges of the prism.



(3 marks)

The prism has 2 triangular ends, each with 3 edges of 4 cm

$$6 \times 4 = 24 \text{ cm}$$

It has 3 edges of length 9 cm joining the ends

$$3 \times 9 = 27 \text{ cm}$$

$$\text{Total edge length} = 24 + 27 = 51 \text{ cm}$$

51 cm

17

A prism has a cross-section that is a regular octagon with sides of length 3 cm.

The length of the prism is 10 cm.

- Write down the number of edges of the prism.
- Work out the total length of all the edges of the prism.

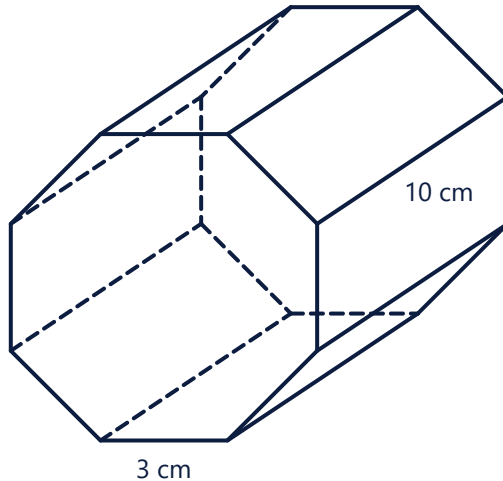


Diagram NOT accurately drawn

(3 marks)

An octagonal prism has 8 edges on each end and 8 edges joining the ends: $8 + 8 + 8 = 24$ edges

The two octagonal ends have 16 edges of 3 cm

$$16 \times 3 = 48 \text{ cm}$$

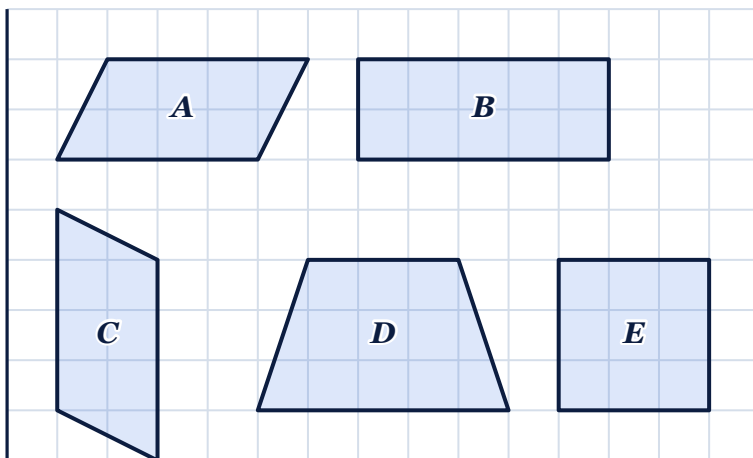
The 8 joining edges have length 10 cm

$$8 \times 10 = 80 \text{ cm}$$

$$\text{Total edge length} = 48 + 80 = 128 \text{ cm}$$

18 The diagram shows five quadrilaterals, labelled A, B, C, D and E, drawn on a centimetre grid.

- Write down the letters of the pair of congruent quadrilaterals.
- Write down the mathematical name of quadrilateral A.



(2 marks)

Congruent shapes are exactly the same shape and size. A and C are identical parallelograms, one rotated, so A and C are the congruent pair

Quadrilateral A has two pairs of parallel sides with no right angles, so it is a parallelogram

19 a. Write down the mathematical name of a polygon with exactly eight sides.

b. A quadrilateral has four right angles. Its opposite sides are equal in length, but not all four sides are equal. Write down the mathematical name of this quadrilateral.

c. Write down the number of lines of symmetry of the quadrilateral in part (b).

(3 marks)

An eight-sided polygon is an octagon

Four right angles with equal opposite sides, but not all sides equal, describes a rectangle

A rectangle that is not a square has 2 lines of symmetry, through the midpoints of opposite sides

20 Amira says,

"Every quadrilateral with four equal sides must be a square."

Is Amira correct? You must give a reason for your answer.

(2 marks)

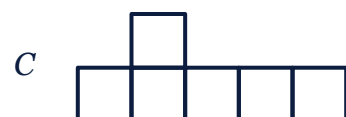
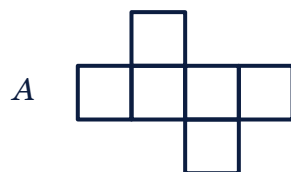
A square needs four equal sides AND four right angles

A rhombus has four equal sides but does not need right angles, so a quadrilateral with four equal sides is not always a square. Amira is not correct

21

Each diagram is made of 6 squares. One of them is the net of a cube.

Write down the letter of the net that folds up to make a cube.



(1 mark)

Try folding each net in your head

A: row of 4 forms the 4 sides, one square is the top and one is the bottom

B: two rows of 3 would overlap

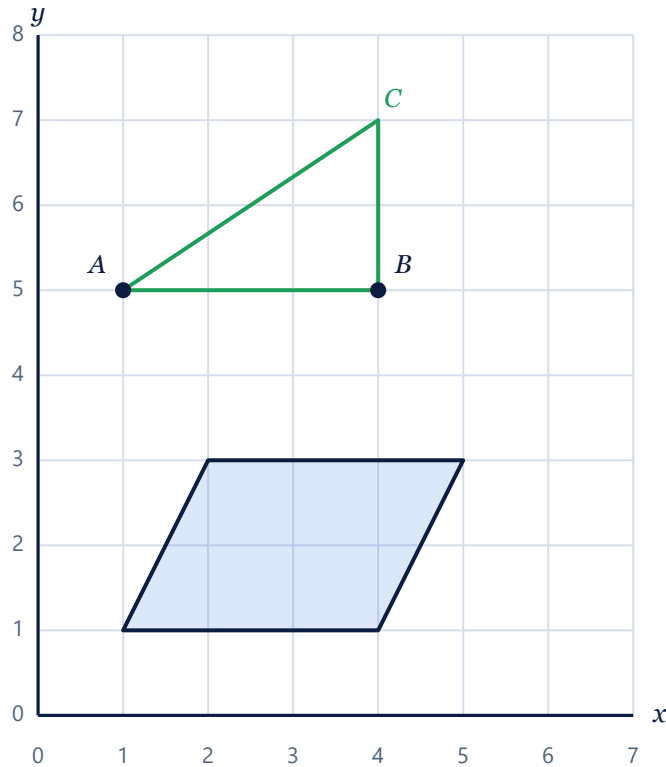
C: a row of 5 would overlap

A

22

The grid shows a quadrilateral and two points, A and B .

- Write down the name of the quadrilateral.
- On the grid, mark a point C so that triangle ABC has a right angle at B . Draw the triangle.



(3 marks)

a)

Opposite sides parallel, no right angles

parallelogram

b)

AB is a horizontal line

A right angle at B means BC is vertical

Mark C straight above B , e.g. $(4, 7)$

Join A to B , B to C and C to A

Triangle ABC with C at $(4, 7)$