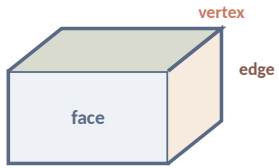
3-D shapes: fact sheet

Planner week 14 · Learn these facts

Faces, edges, vertices



Cuboid: 6 faces, 12 edges, 8 vertices

Prisms

same cross-section all the way through

triangular prism: 5, 9, 6

Named after the end face

Pyramids

square-based pyramid

5 faces, 8 edges, 5 vertices

Sides meet at a point

Curved shapes

cylinder cone sphere

Cone: circle base and a point

Plan

view from above

Looking straight down

Draw every edge you see

Front elevation

view from the front

Looking straight at the front

Side elevation

view from the side

From the direction of the arrow

Use the grid to scale

Count them

Cube / cuboid	6 F, 12 E, 8 V
Triangular prism	5 F, 9 E, 6 V
Square pyramid	5 F, 8 E, 5 V

Which sheet do I need?

2-D shapes ▸
flat shapes and their names

Names, faces and edges ▸
faces, edges, vertices

Plans and elevations ▸
plan, front or side elevation

Key words

- **Face** a flat surface
- **Edge** where two faces meet
- **Vertex** a corner (plural vertices)
- **Elevation** a view from the front or side

Exam tips

- Count edges carefully: tick them as you go.
- Prism: the end shape is the same all the way through.
- Plan = from above. Elevation = from the front or side.
- Draw elevations to scale on the grid.
- Show inside edges as solid lines if you can see them from that direction.
- Sketch 3-D shapes with the hidden edges dashed.

2-D shapes: fact sheet

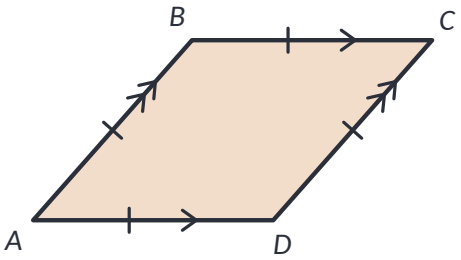
3-D shapes · Planner week 14 · Learn the method

Worked example

QUESTION

The diagram shows a quadrilateral *ABCD*. The dashes show equal sides and the arrows show parallel sides.
Write down the name of the shape and describe it fully.

ANSWER



Sides: 4 equal sides (all four have a dash)
Angles: opposite angles are equal; no right angles
Parallel sides: 2 pairs (AB and DC, AD and BC)
Lines of symmetry: 2 (the diagonals)

It is a rhombus: 4 equal sides, opposite angles equal, 2 pairs of parallel sides and 2 lines of symmetry.

A square is a special rhombus: it also has 4 right angles.

How to do it

1. Count the sides: 3 triangle, 4 quadrilateral, 5 pentagon, 6 hexagon.
2. Read the markings: **dashes** = equal sides, **arrows** = parallel sides, a **small square** = a right angle.
3. Look at the **angles**: any right angles? Are opposite angles equal?
4. Find the **lines of symmetry**: where could you fold it so the two halves match?
5. Write the **name**, then list what you found.

To describe it fully, write:

the **name**, then **sides**, **angles**, **parallel sides** and **lines of symmetry**

Watch out

- Calling a rhombus a square. A square must have **4 right angles**; a rhombus is "pushed over".
- Mixing up a **trapezium** (1 pair of parallel sides) and a **parallelogram** (2 pairs).
- Saying a rectangle has 4 lines of symmetry. It has **2**: its diagonals are **not** lines of symmetry.

Names, faces and edges: fact sheet

3-D shapes · Planner week 14 · Learn the method

Worked example

QUESTION

How many faces, edges and vertices does a triangular prism have? (It has a triangle at each end.)

ANSWER

1. Faces: 2 triangles + 3 rectangles = 5
2. Edges: 3 on each triangle + 3 joining them = 9
3. Vertices (corners): 3 on each triangle = 6

5 faces, 9 edges, 6 vertices

Faces are flat sides, edges are lines, vertices are corners.

How to do it

1. Name the shape: prism, pyramid, cylinder, cone, sphere.
2. Faces: count the flat surfaces.
3. Edges: count the lines where faces meet.
4. Vertices: count the corners.
5. Check with the table of common shapes.

Model answer:

5 faces, 9 edges, 6 vertices

Watch out

- Missing the hidden edges at the back.
- Calling a cuboid a rectangle.
- Mixing up edges and vertices.

Plans and elevations: fact sheet

3-D shapes · Planner week 14 · Learn the method

Worked example

QUESTION

A cuboid is 4 cm long, 3 cm wide and 2 cm high.

Draw the plan of the cuboid (the view from above).

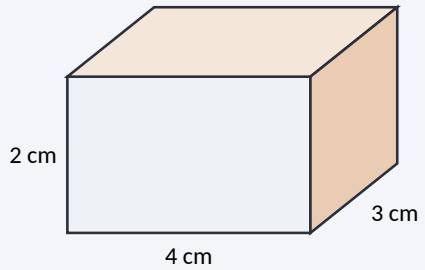


Diagram NOT accurately drawn

ANSWER

1. From above you see the top face only.
2. The top face is 4 cm long and 3 cm wide.

A rectangle 4 cm by 3 cm

Plan: from above. Elevations: from the front and side.

How to do it

1. Find the direction you are looking from.
2. Imagine the shape flat against the paper.
3. Measure lengths from the diagram, using the scale.
4. Draw every edge you can see as a line.
5. Label it: plan, front or side elevation.

Model answer:

A 4 cm by 3 cm rectangle

Watch out

- Drawing a 3-D picture instead of a flat view.
- Using the height in the plan.
- Looking from the wrong side.