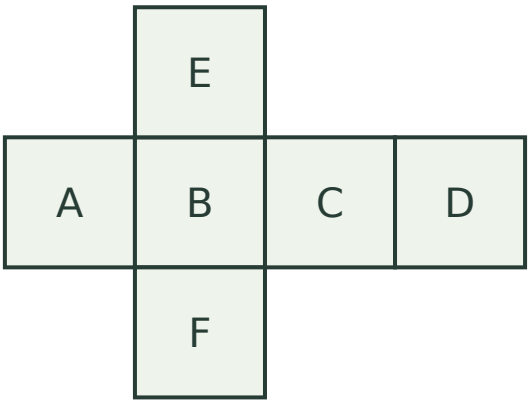
3D shapes and nets topic test

12 questions | 23 marks | 35 minutes

Identify nets, explain folds and plan accurate models.

Equivalent correct methods earn the corresponding marks.

1. Name the solid made by the net. [1 mark]



It has six equal square faces in a valid arrangement.

Answer: Cube.

2. How many rectangular faces does a triangular prism have? [1 mark]

One rectangle joins each pair of corresponding sides of its triangular ends.

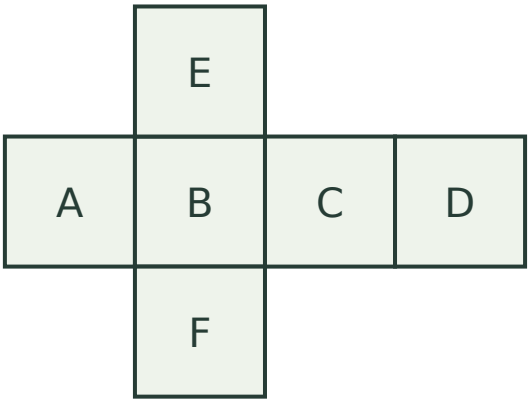
Answer: Three.

3. Name the solid with one square and four triangular faces. [1 mark]

The four triangles meet at an apex above the square.

Answer: Square pyramid.

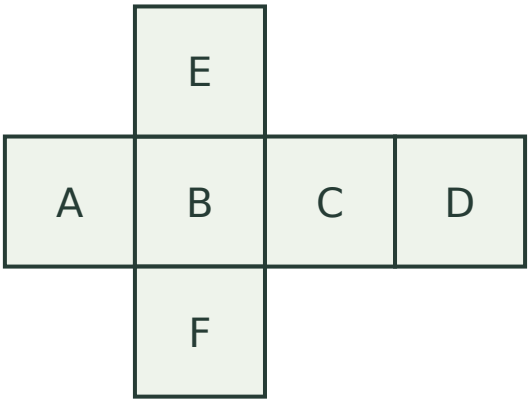
4. Which labelled face is opposite E? [1 mark]



E and F close opposite ends.

Answer: F.

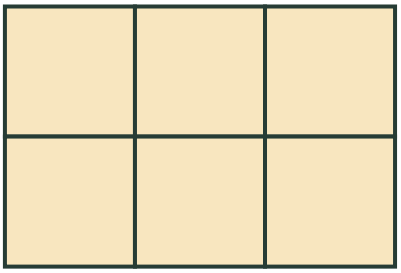
5. Will A and C share an edge on the folded cube? [2 marks]



They become opposite faces.

Answer: No.

6. Explain why this arrangement does not make a cube net. [2 marks]



Four panels meet at an interior grid corner, but only three faces meet at a cube vertex.

Answer: It forces overlap when folded.

7. How many vertices does a cube have? [1 mark]

Four on one face and four on the opposite face.

Answer: Eight.

8. A solid has five faces. Is that enough information to name it? Explain. [2 marks]

A triangular prism and a square pyramid both have five faces. Face shapes are needed.

Answer: No.

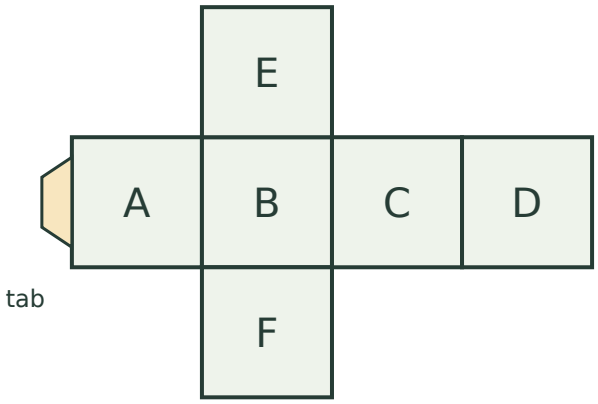
9. A cube has edges of 4 cm. Find the total area of its six faces. [2 marks]

Each face: $4 \times 4 = 16$.

Six faces: $6 \times 16 = 96$.

Answer: 96 square centimetres.

10. Draw a valid net for a cube with 2 cm edges. Show one glue tab without counting it as a face. [3 marks]



Each square has sides of 2 cm.

Draw a valid arrangement, equal edge lengths and a tab outside a face.

The tab is for joining; there are still six faces.

Answer: Any valid net of six 2 cm squares, with an external tab.

11. A rectangular box is 4 cm long, 3 cm wide and 2 cm high. [4 marks]

(a) List the sizes of its six faces. [2 marks]

Opposite faces form three matching pairs.

Answer: Two 4×3 cm, two 4×2 cm and two 3×2 cm rectangles.

(b) Find their total area. [2 marks]

$2 \times 12 + 2 \times 8 + 2 \times 6 = 24 + 16 + 12 = 52$.

Answer: 52 square centimetres.

12. An equilateral triangular prism has end edges 4 cm and length 7 cm. Describe all the pieces needed for its net. [3 marks]

Two matching triangles close the ends.

Each of their three sides joins to a rectangular panel extending 7 cm.

Answer: Two equilateral triangles of side 4 cm and three 4 cm by 7 cm rectangles.