# 3D SHAPES AND NETS

# KS2 SATS
## PRACTICE QUESTIONS BY TOPIC

**1**

[Extra]

A cuboid has **8 vertices**.

4 vertices on the top

4 vertices on the bottom
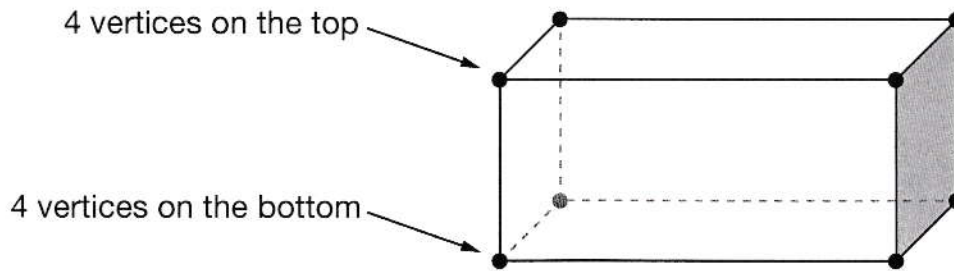
How many vertices does this 3-D shape have?
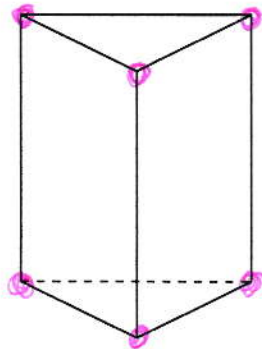
6

A different 3-D shape has **8 vertices**.

It has **6 faces**. Each face is the **same**.

Put a ring around the correct name for this 3-D shape.

square                      pyramid                      cylinder
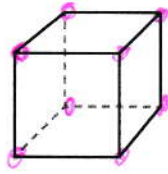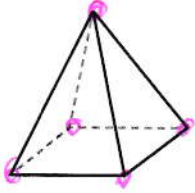
cube                                rectangle

[1 mark]

**2**

[2017]

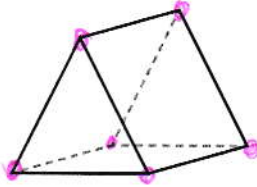Here are diagrams of some 3-D shapes.

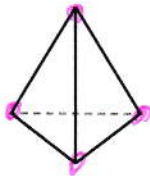Tick each shape that has the same number of faces as vertices.

Cube

8 VERTICES
6 FACES

☐

Square-based pyramid

5 VERTICES
5 FACES

☑

Triangular prism

6 VERTICES
5 FACES

☐

Triangular-based pyramid

4 VERTICES
4 FACES

☑

[2 marks]

**3**

[2005]

This table shows information about four solid shapes.

Complete the table.

One has been done for you.

| | number of flat surfaces | number of curved surfaces |
|---|---|---|
| sphere | 0 | 1 |
| cone | 1 | 1 |
| cuboid | 6 | 0 |
| cylinder | 2 | 1 |

[2 marks]

**4**

[2012]

Mina thinks of a 3-D shape.

She says,

*'It has 5 faces.*
*Two opposite faces are triangles.*
*The other faces are rectangles.'*
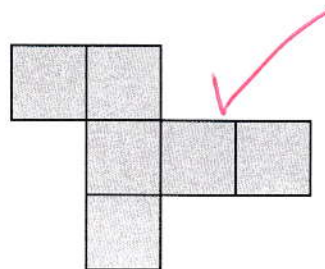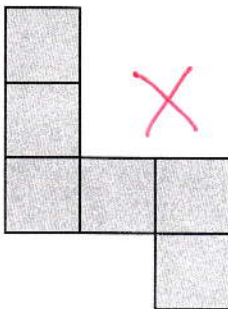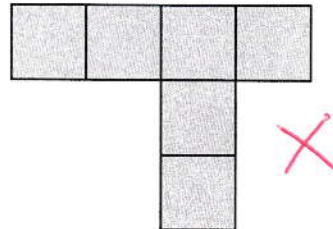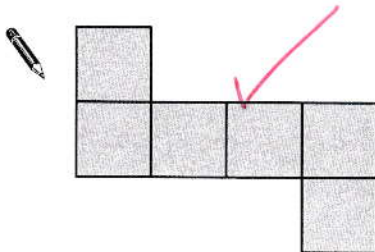
What is the name of the 3-D shape?

TRIANGULAR PRISM

[1 mark]

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**5**

[2005]

Here are four diagrams.

On each one put a tick (✓) if it is a net of a cube.
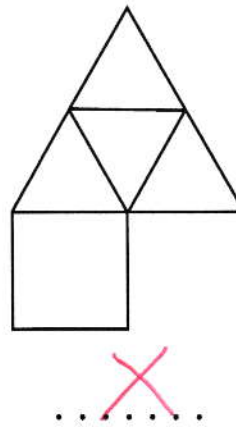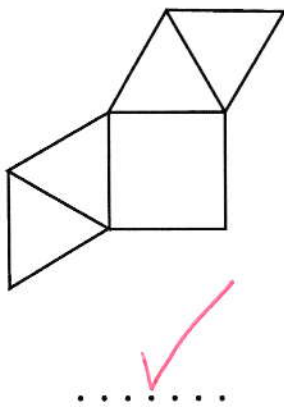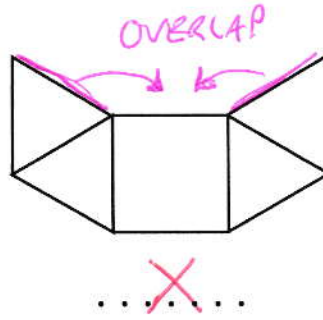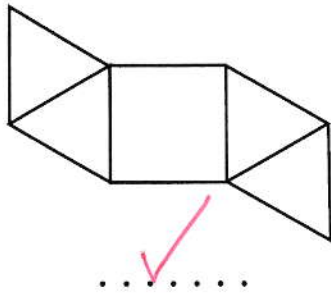Put a cross (✗) if it is not.

✓

✗

✗

✓

[2 marks]

**6**

[2000]

Look at each of these diagrams.

Put a tick (✓) if it is the **net of a square based pyramid.**
Put a cross (✗) if it is **not.**

OVERLAP

. . . . ✓ . . . .

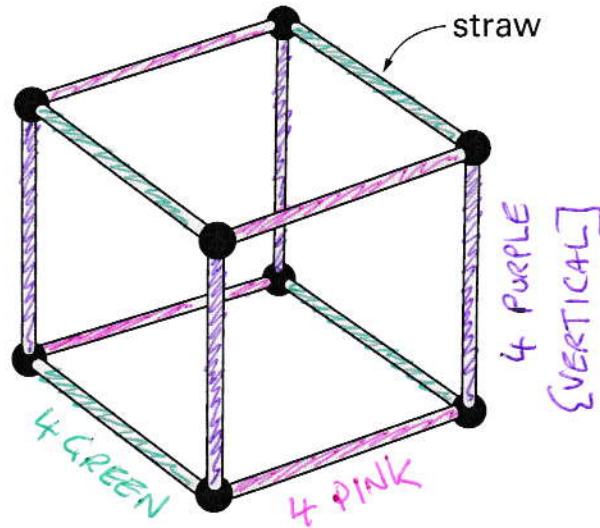. . . ✗ . . .

. . . . . ✓ . . . .

. . . . ✗ . . .

[2 marks]

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**7**

[Extra]

Anna makes a cube using straws.

First she joins 4 straws
to make a square.

Then she joins more straws
to make a cube.

straw

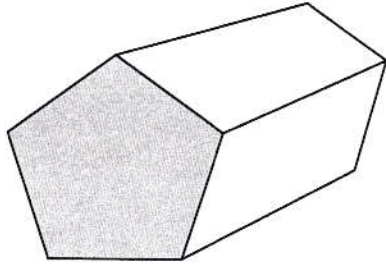4 PURPLE [VERTICAL]

4 GREEN

4 PINK

Altogether, how many straws does she use?

12

[1 mark]

This is a drawing of a pentagonal prism.



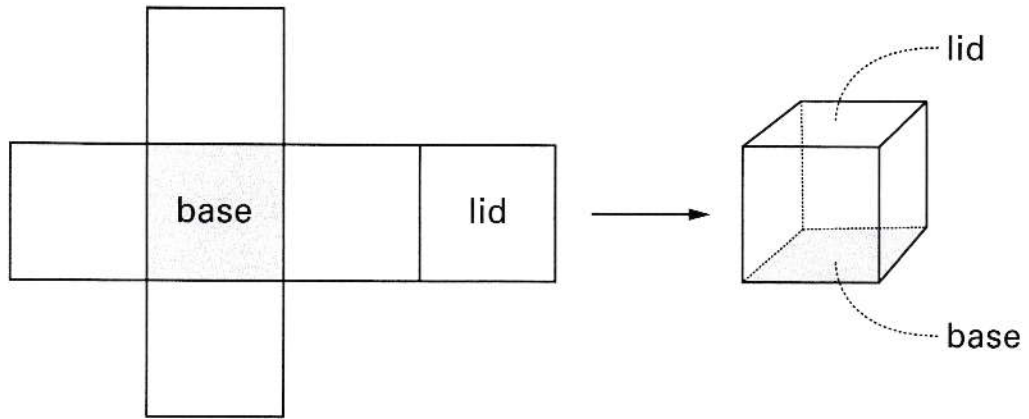Tick (✓) the one shape that is a net for the pentagonal prism.



*& MISSING RECTANGLE*

*SAME SIDE SO THEY WILL OVERLAP*

✓

*OVERLAP*

*ONLY ONE PENTAGON*
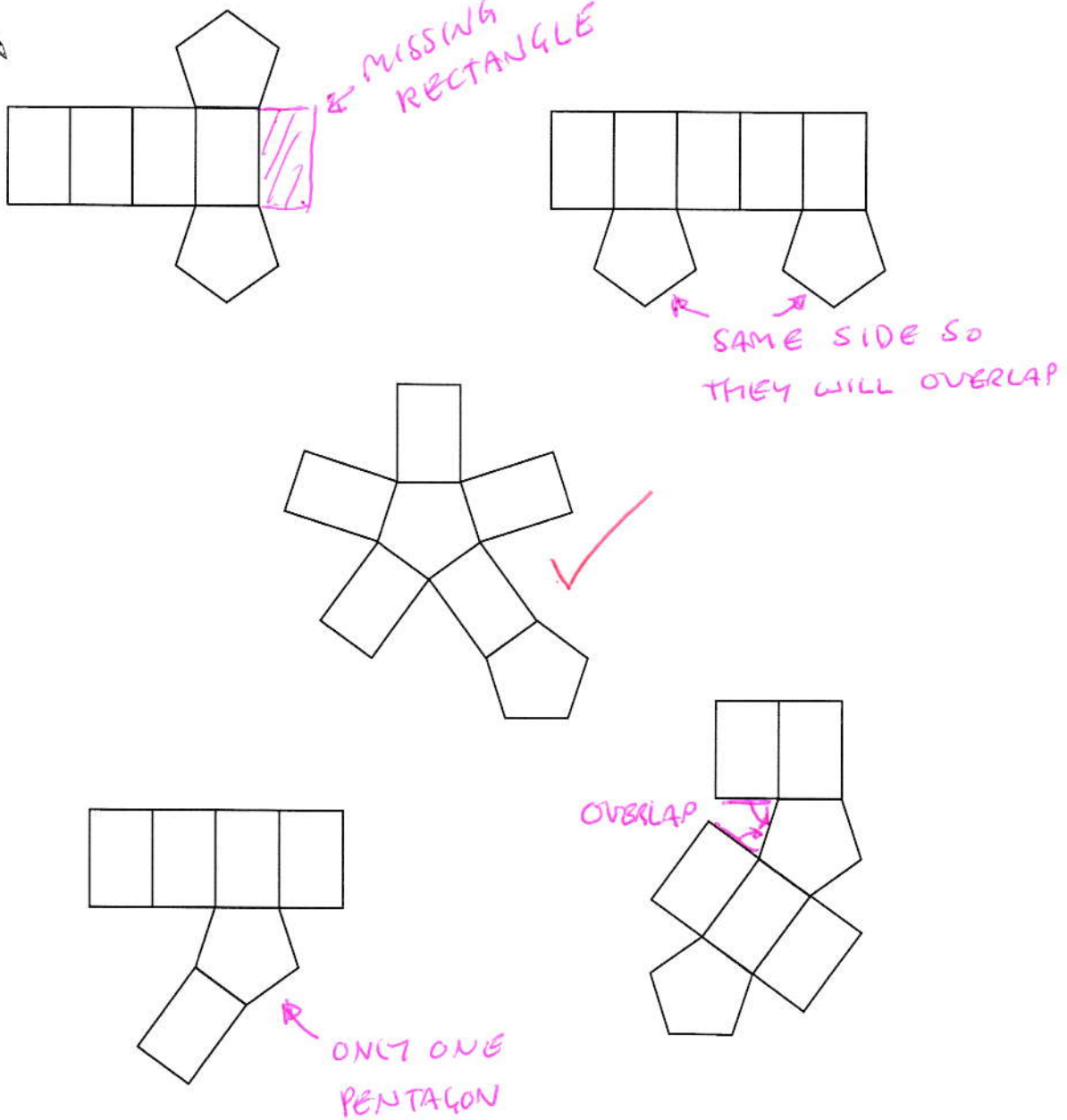
[1 mark]
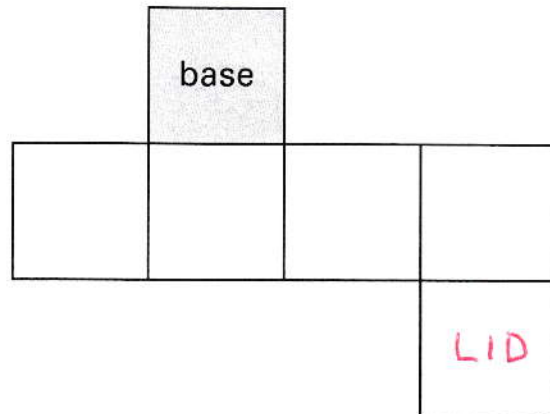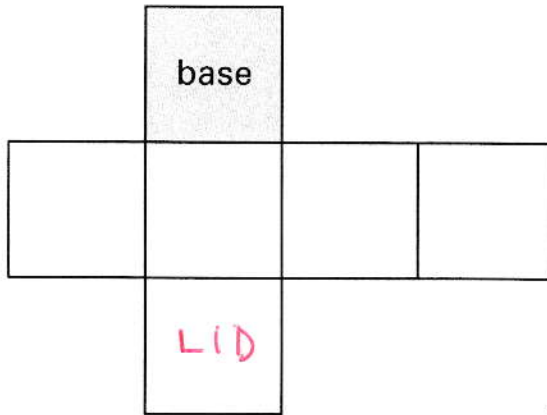
The diagram shows a net that folds to make a box.



There are two different nets shown below.

Each net folds to make a box.

The base of each box is labelled.

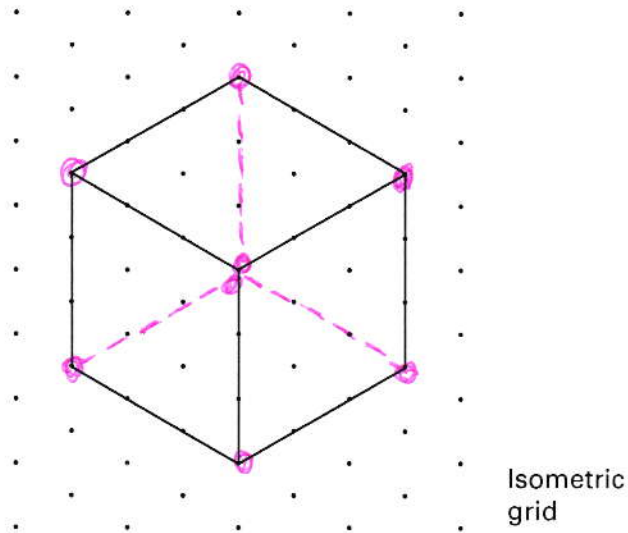For each box, **label** the face that will be the **lid**.



base

LID

base

LID

Here is a diagram of a cube.



Isometric grid

Fill in the missing numbers.

The first one is done for you.

The diagram shows ......*3*...... faces,

but a cube has ......*6*..... faces altogether.

The diagram shows ......*9*...... edges,

but a cube has ......*12*...... edges altogether.

The diagram shows ......*7*...... vertices,
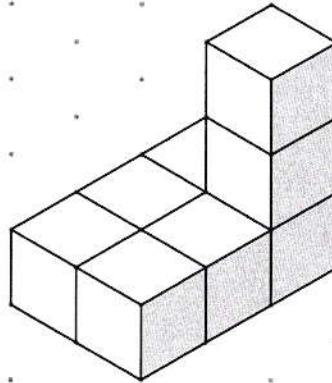
but a cube has ......*8*...... vertices altogether.

[1 mark]

Sam uses 8 cubes to make this shape.



He adds more cubes to make this cuboid.



*TWO LAYERS OF FIVE CUBES ARE ADDED!*
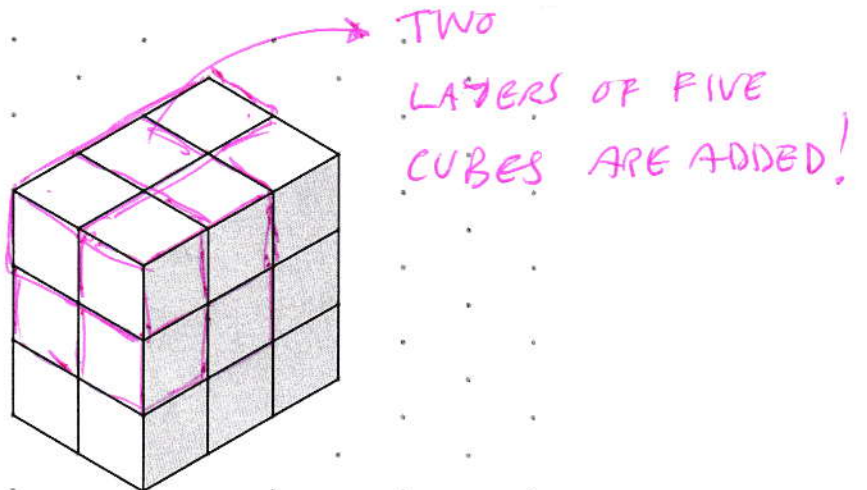
How many **more** cubes does he add to make this cuboid?

10

[1 mark]

**12**

[Extra]

Here is a net of a 3-D shape.



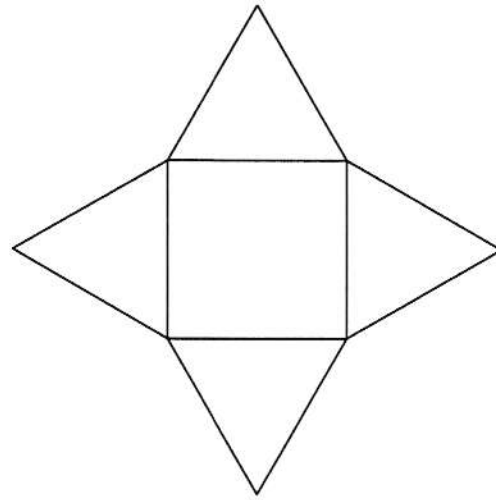When the net is folded, what 3-D shape will it make?
Tick (✓) the correct answer below.

Cube                                Prism                        Square-based
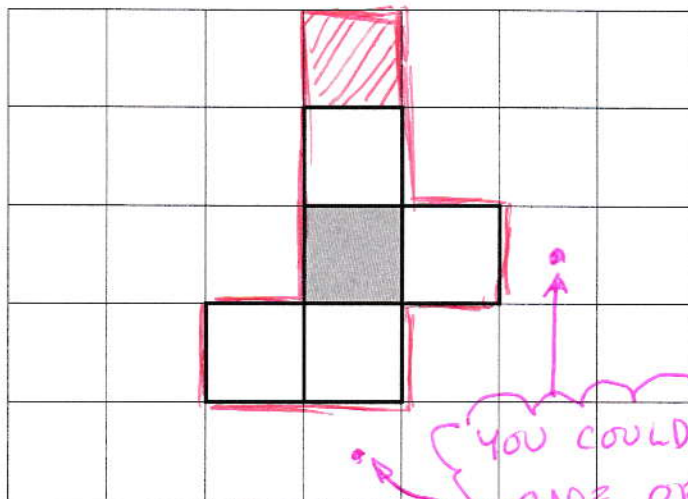                                                                 pyramid
                                                                    ✓

        Triangular-based                        Cuboid
            pyramid

[1 mark]

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**13**

[2003]

Here is the net of a cube with no top.

The shaded square shows the bottom of the cube.

Draw an extra square to make the net of a cube which does have a top.
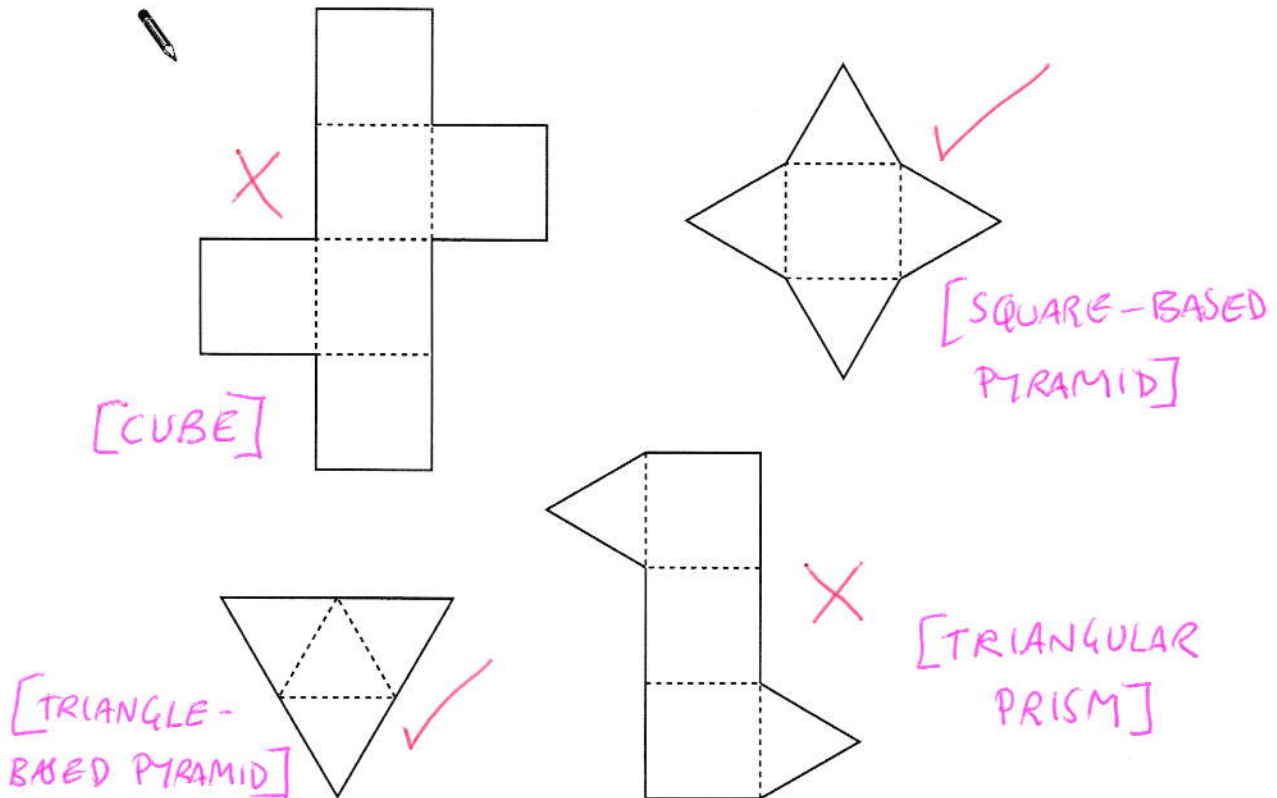


YOU COULD HAVE SHADED ONE OF THESE, INSTEAD!

[1 mark]

**14** Here are some nets of shapes.

For each net, put a tick (✓) if it folds to make a **pyramid**.
Put a cross (✗) if it does not.

✗

[CUBE]

✓ [SQUARE-BASED PYRAMID]

[TRIANGLE-BASED PYRAMID] ✓

✗ [TRIANGULAR PRISM]

[2 marks]

**15** The table shows information about three solid shapes.

Complete the table.

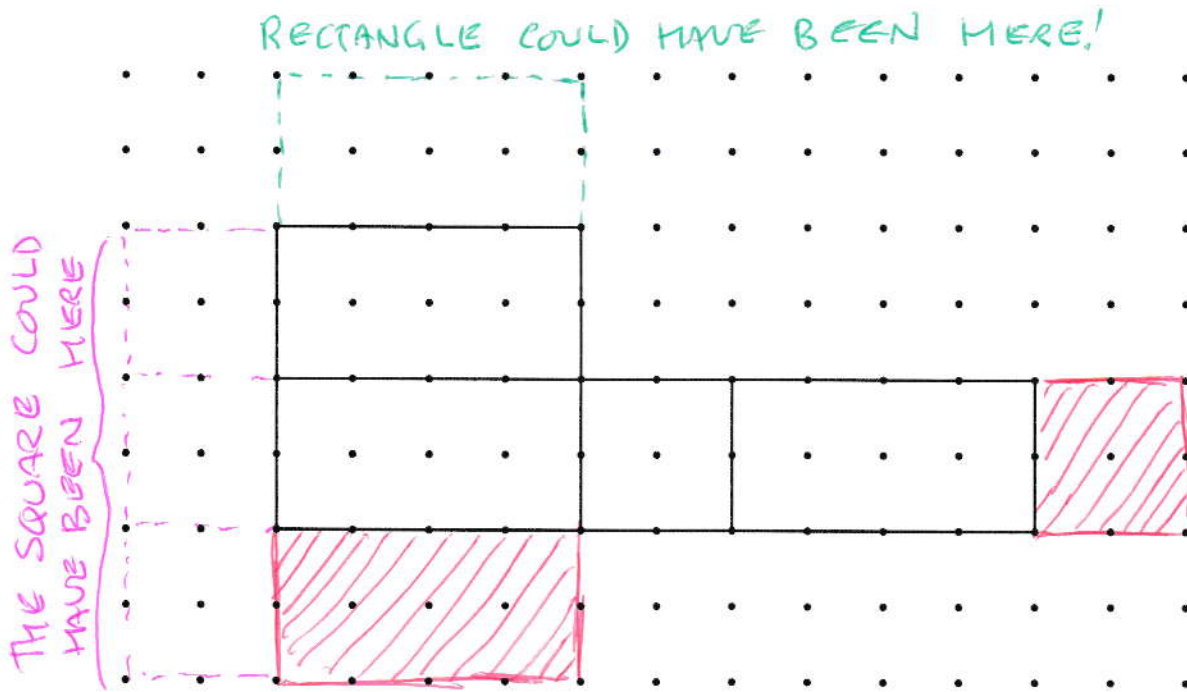|  | number of **faces** | number of **vertices** |
|---|---|---|
| cube | 6 | 8 |
| triangular prism | 5 | 6 |
| square-based pyramid | 5 | 5 |

[2 marks]

Look at the cuboid below.

4cm

2cm

2cm
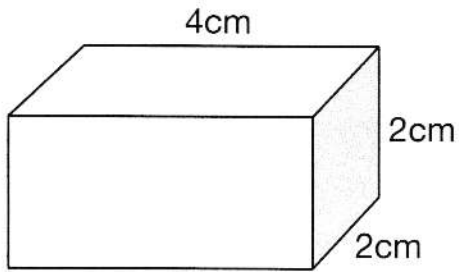
Draw **two** more faces to complete the net of the cuboid.

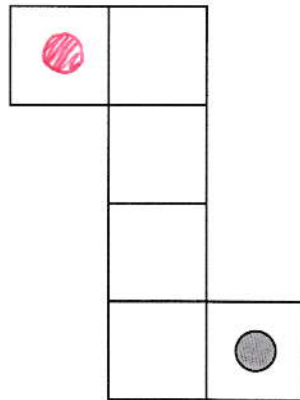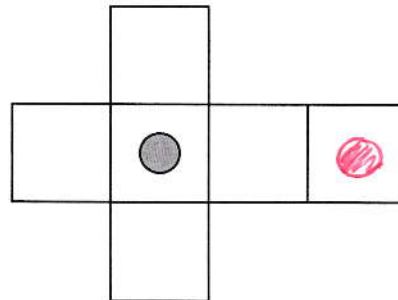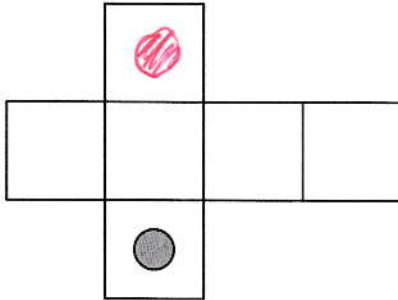RECTANGLE COULD HAVE BEEN HERE!

THE SQUARE COULD HAVE BEEN HERE

[2 marks]

**17**

Here are three nets of a cube.

On each net draw **one more dot** so that each cube will have dots on **opposite** faces.

[2 marks]

**18**

The table shows information about three solid shapes.

Complete the table.

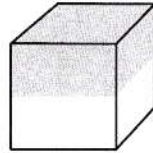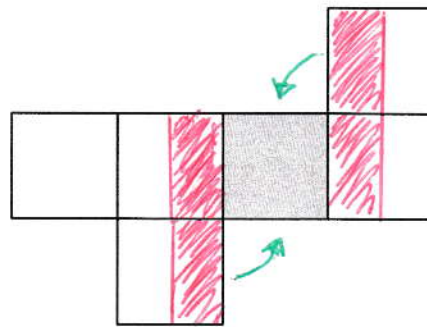|  | number of **edges** | number of **vertices** |
|---|---|---|
| cuboid | 12 | 8 |
| triangular prism | 9 | 6 |
| triangle-based pyramid | 6 | 4 |

[2 marks]

Here is a cube.

The cube is shaded all the way round so that the top half is grey and the bottom half is white.
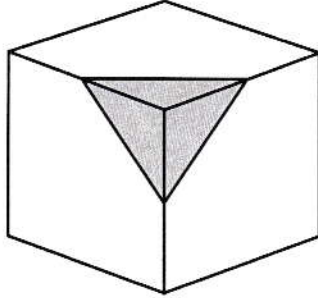
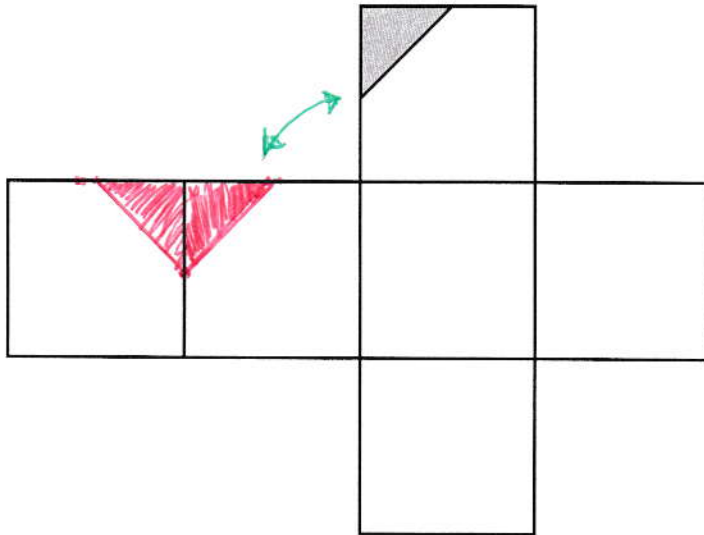Here is the net of the cube.

Complete the shading.

[1 mark]

A cube has shaded triangles on three of its faces.



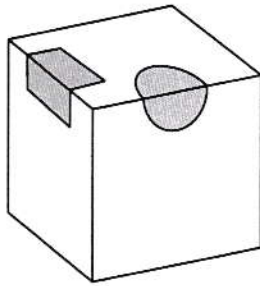Here is the net of the cube.

Draw in the two missing shaded triangles.



[1 mark]
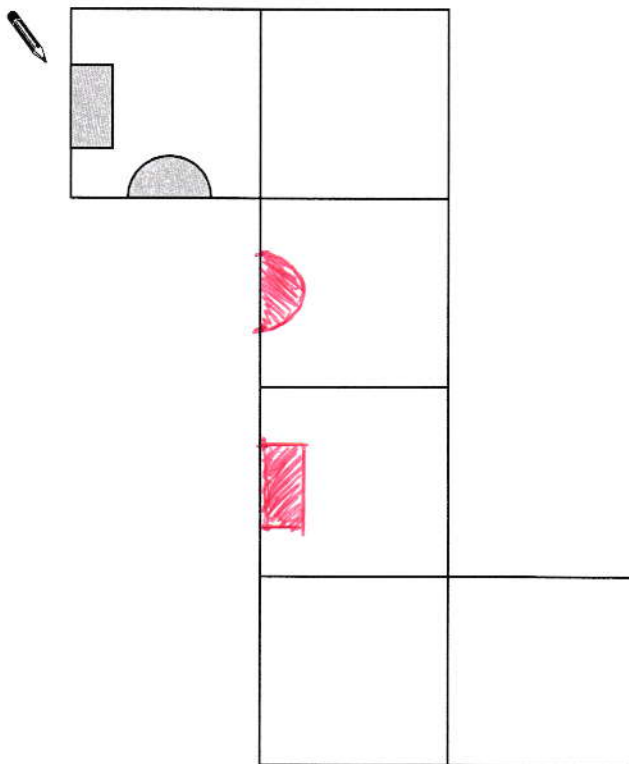
A cube has shaded shapes on three of its faces.



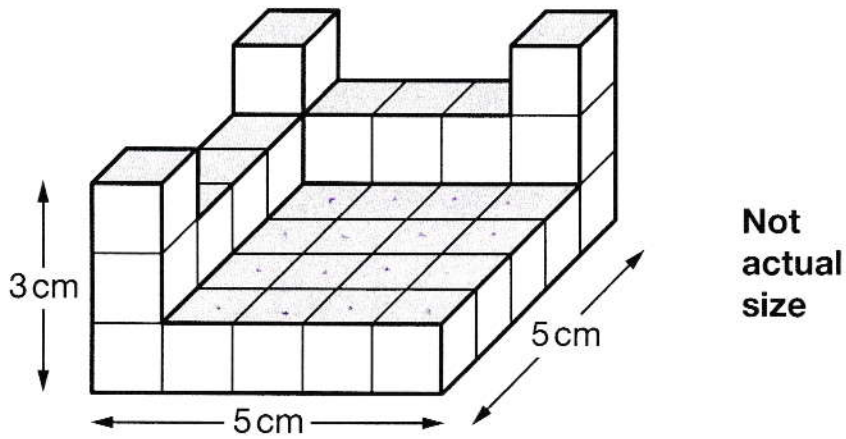Here is a net of the cube.

Draw in the two missing shaded shapes.



[1 mark]

This shape is made of wooden centimetre cubes.



**Not actual size**

3 cm

5 cm

5 cm

How many **more** centimetre cubes are needed to make it into a solid cuboid 3 cm tall, 5 cm long and 5 cm wide?

38

[1 mark]

25 CUBES IN EACH LAYER

↳ 16 MORE NEEDED FOR 2ND LAYER

↳ 22 MORE NEEDED FOR TOP LAYER

38 TOTAL