Planner

Nets and surface area

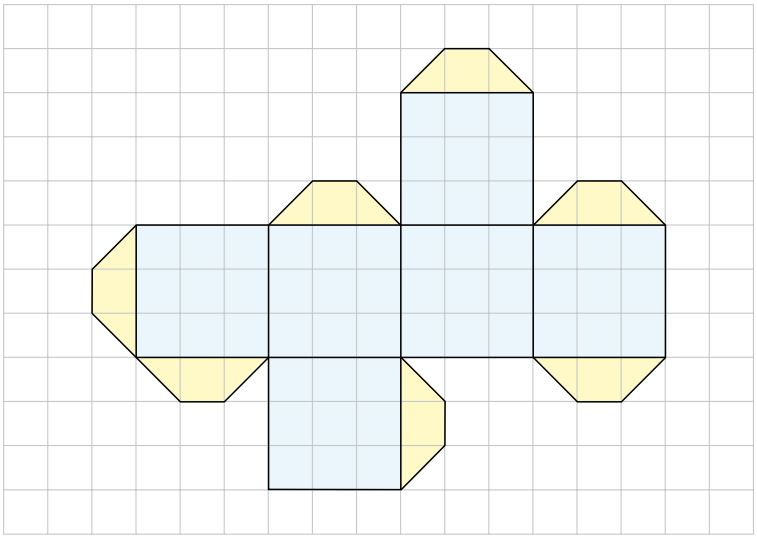
- Identifying and drawing nets of cubes and cuboids
- Calculating the surface area of cubes and cuboids
- Calculating the surface area of a triangular prism
- Identifying nets of other 3-D shapes

Keywords

You should know

explanation 1

1 The blue part of the diagram shows the net of a cube.
The yellow parts are tabs for sticking it together.

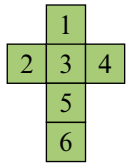


a Copy the diagram onto centimetre square paper and cut it out to make a cube that is 3 cm long, 3 cm high and 3 cm wide.

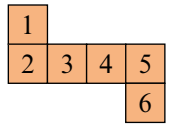
b Draw a different net that will make the same cube (don't include the tabs). Cut it out and check that it folds up to make the cube.

2 Which of these are possible nets of a cube?

a



b



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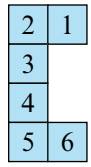

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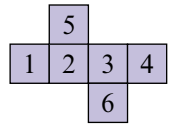

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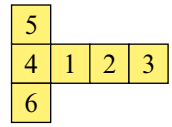

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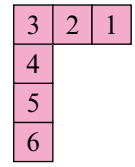
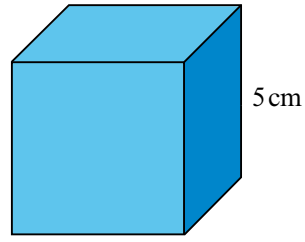


3 Look at your answers to question **2**. Imagine that each of those nets is folded to make a cube. For each net, which face would be opposite face 1 when folded?

explanation 2 — online

4 Here is a cube.



a How many faces does a cube have?

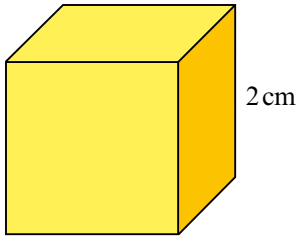
b What is the area of each face?

c Find the surface area of this cube.

5 A cube has side length 7 cm. Show that the surface area of the cube is 294 cm^2.

6 Calculate the surface area of these cubes.

a



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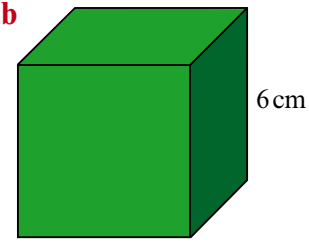

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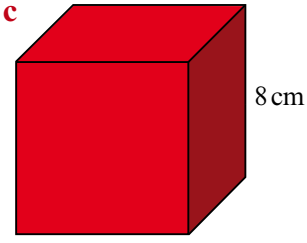
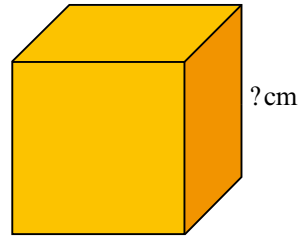


***7** A cube has surface area 600 cm^2.

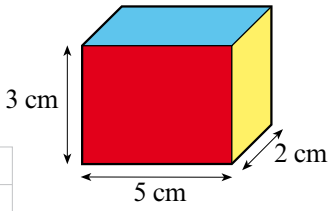


a What is the area of each face?

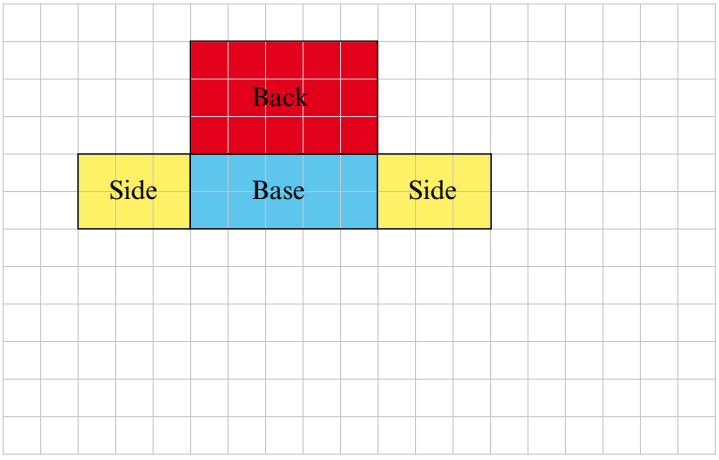
b What is the side length of the cube?

explanation 3 online

8 This cuboid is 5 cm long, 2 cm wide and 3 cm high.



a On squared paper, copy and complete the net for this cuboid.



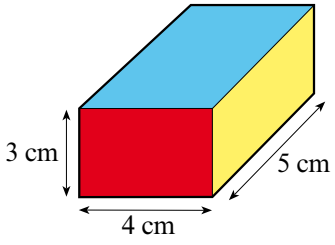
b **i** What is the area of a red face of the cuboid?

ii What is the area of a blue face?

iii What is the area of a yellow face?

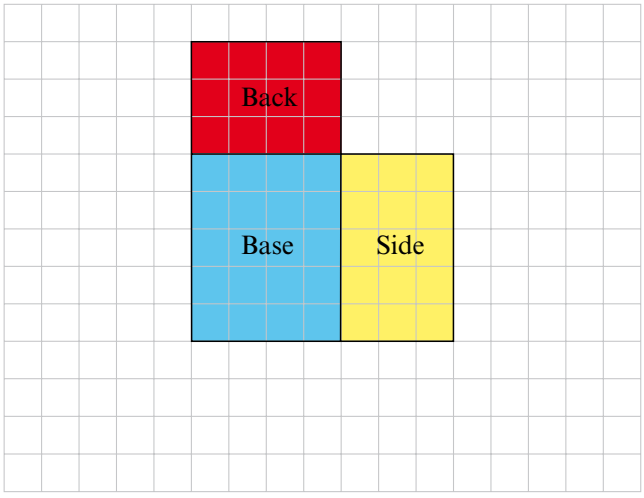
c Show that the surface area is 62 cm^2.

9 This cuboid is 4 cm long, 5 cm wide and 3 cm high.



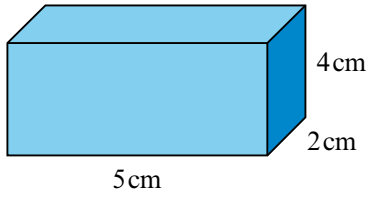
a On squared paper, copy and complete the net for this cuboid.

b Use your net to find the surface area of the cuboid.

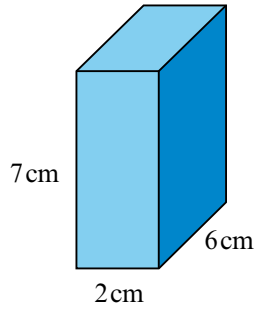


10 Calculate the surface area of each cuboid.

a



b



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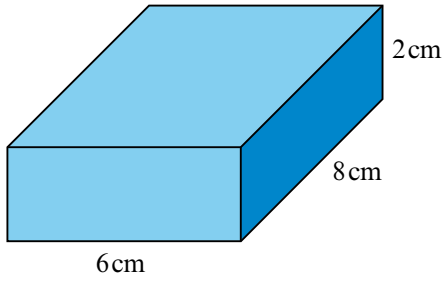

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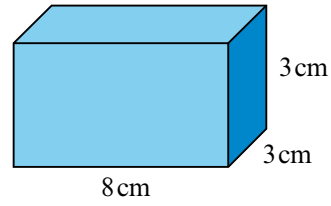
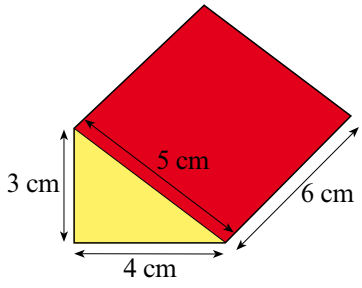
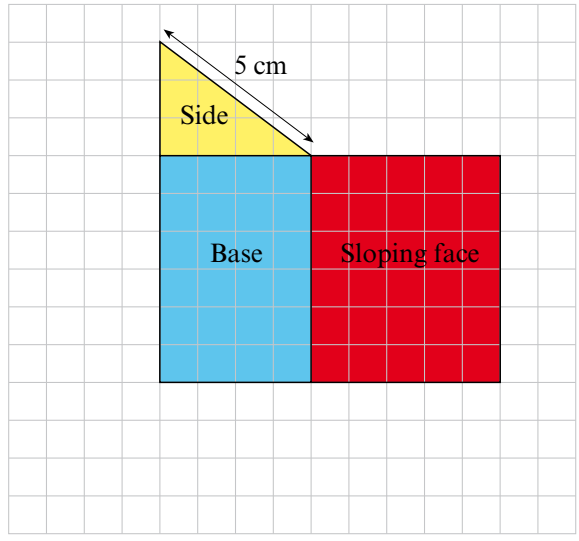


***11** This is a triangular prism. Here is a partly completed net for it.



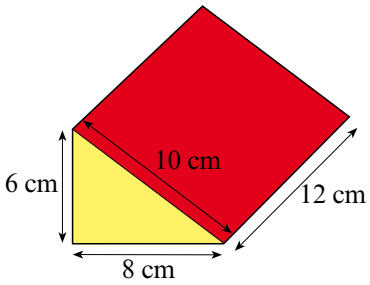


a Copy and complete the net by adding the two missing sides (a triangle and a rectangle).

b Use your net to find the surface area of the triangular prism.

c Draw a different net for the triangular prism.

***12** This is a triangular prism.



a Draw a net for this triangular prism.

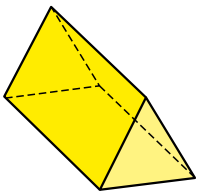
b Use your net to find the surface area of the triangular prism.

c Two of these triangular prisms are stuck together to make a cuboid. The volume of the cuboid is double the volume of one triangular prism.

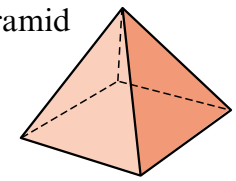
Is the surface area of the cuboid double the surface area of one triangular prism? Explain your answer.

13 Match the 3D shapes with their nets.

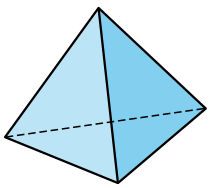
a Triangular prism



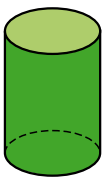
b Square-based pyramid



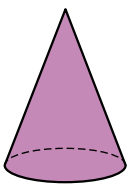
c Tetrahedron



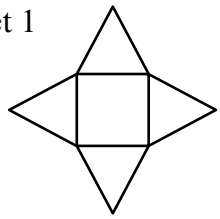
d Cylinder



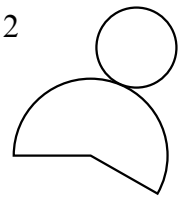
e Cone



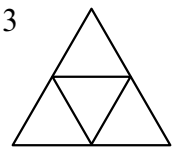
Net 1



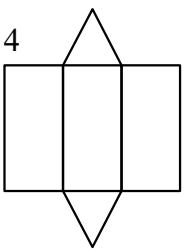
Net 2



Net 3



Net 4



Net 5