Representing three-dimensional objects

Learn and practise | Free preview

A sample from this topic. The complete topic collection contains three different resources and worked solutions.

Read the explanation and worked example. Show your working; use a calculator only where asked.

What you will practise

• Interpret nets and orthogonal views of three-dimensional objects.

• Explain a method and check the reasonableness of a result.

Useful starting skills: Use the prerequisite operations and representations shown in the worked example.

A net unfolds a solid into flat faces. An orthogonal view looks straight from one direction, such as front, top or side. Each view loses some depth information.

A perspective sketch helps visualise shape but may distort lengths. Use several views or a labelled net to specify an object more completely.

Worked example

A box is 6 cm wide,4 cm deep and 3 cm tall. Describe its three orthogonal views.

Front shows width and height; top shows width and depth.

Side shows depth and height.

Answer: Front 6×3; top 6×4; side 4×3 cm rectangles

Try it yourself

Name: _____ Date: _____

1. How many square faces form a cube net?

2. A right triangular prism has how many triangular and rectangular faces?

Answers and explanations

Check the method as well as the final answer. An alternative correct method is also valid.

1. 6

Each face of the cube appears once.

2. 2 triangular and 3 rectangular faces

The matching triangles are joined by three rectangles.

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