MATHEMATICS · KINDERGARTEN TO GRADE 3

Sides, vertices, edges, and faces

Difficulty level: Easy

Mathematics: Kindergarten to Grade 3

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Overview of the concept

This is how you describe a shape exactly, like counting the corners of a triangle or the flat faces of a cereal box, instead of just guessing its name. A builder ordering a triangular brace needs to name the shape by its sides and corners so the supplier cuts the right thing. A child sorting blocks by shape learns to count faces and edges instead of just saying it looks like a box. Knowing sides, vertices, edges, and faces tells you how to describe any solid shape precisely, so someone else can picture exactly what you mean.



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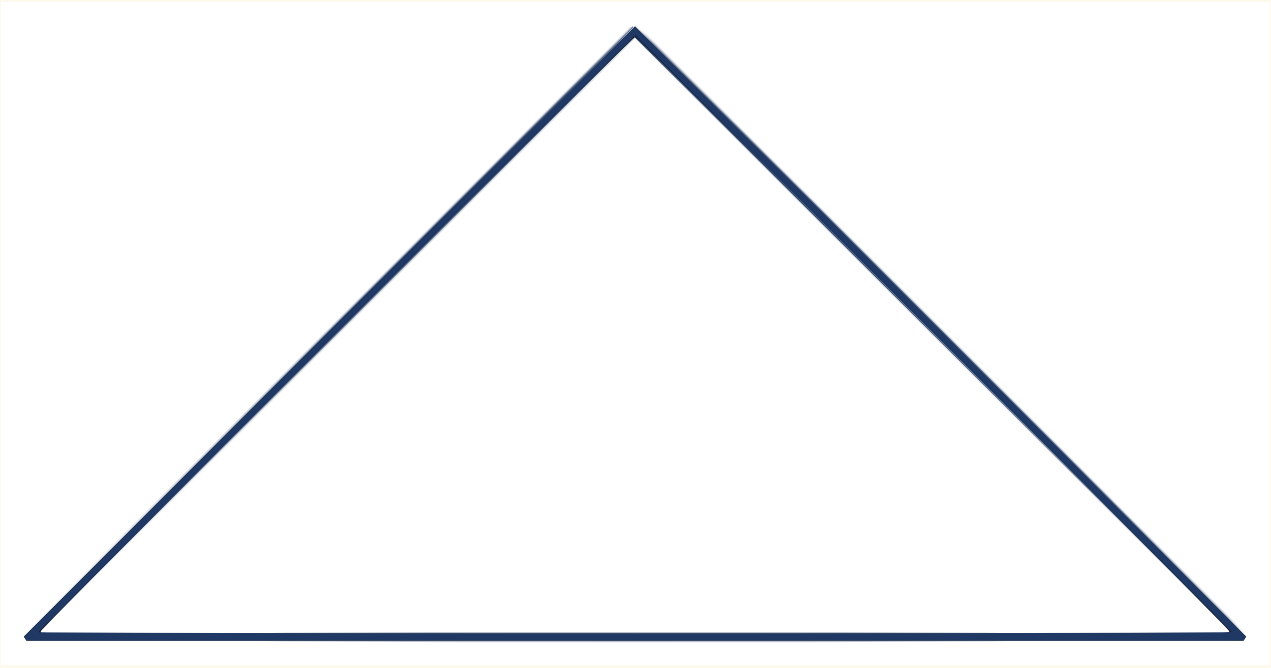
Worked examples

EXAMPLE 1

Q The picture shows a triangle. How many sides does it have, and how many vertices?



SOLUTION

This is a counting question, so count the straight edges first. The triangle has 3 sides.

A vertex is a corner where two sides meet. The triangle has 3 corners, so it has 3 vertices.

So the answer is 3 sides and 3 vertices. For a flat shape, the number of sides and the number of vertices are the same.

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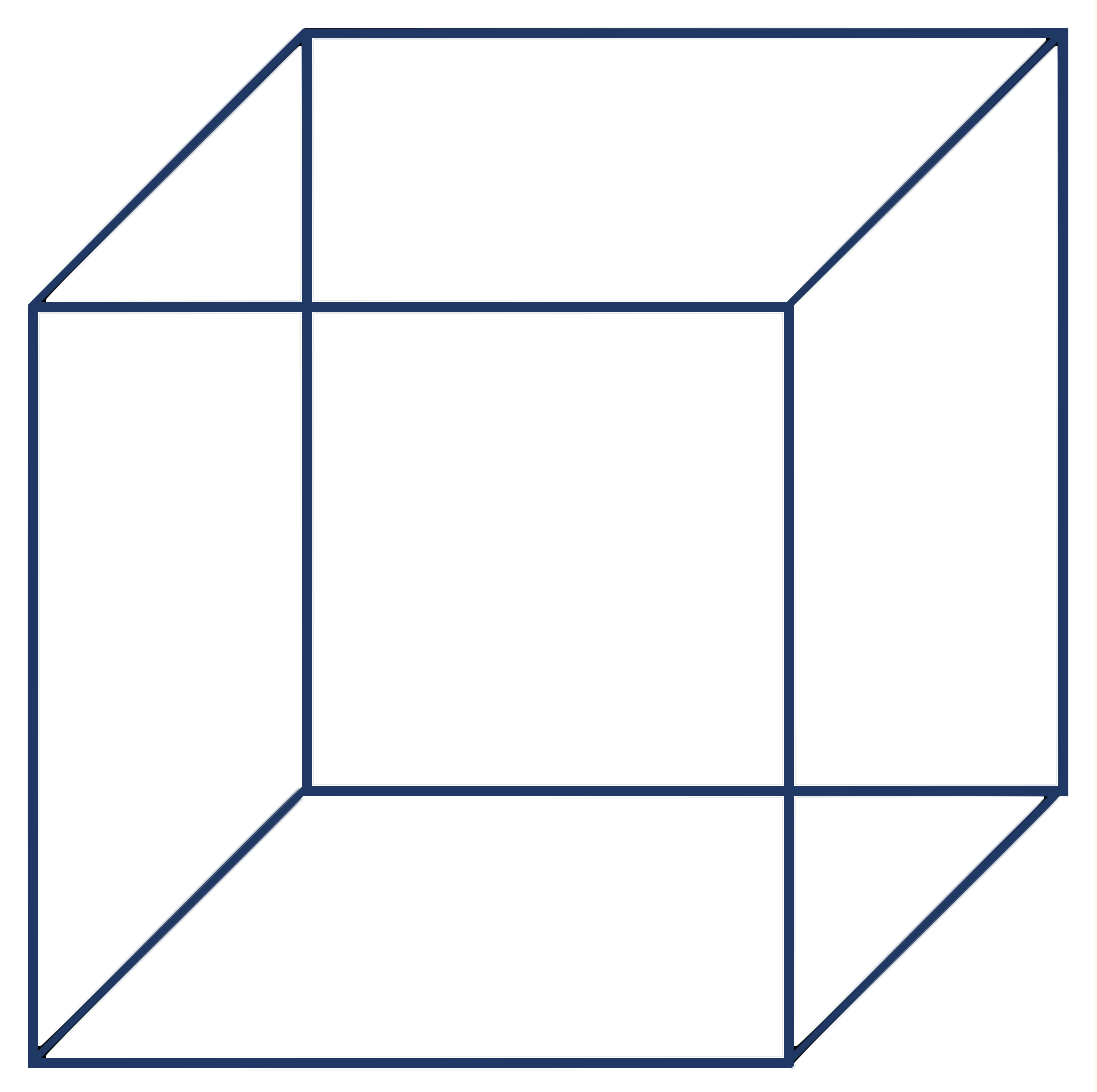
EXAMPLE 2

Q The picture shows a cube. How many faces, edges and vertices does it have?



SOLUTION

This is a counting question about a solid, so count in order: faces first, then edges, then vertices.

A cube has 6 square faces: top, bottom and 4 around the sides. Each face has 4 edges, but every edge is shared by 2 faces, so there are $\frac{6 \times 4}{2} = 12$ edges. The cube has 8 corners, so 8 vertices.

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So the answer is 6 faces, 12 edges and 8 vertices.

Practice questions

1 How many sides does a hexagon have?

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2 A square pyramid has a square base. How many of its faces are triangles?

A 1

B 2

C 3

D 4

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3 **A square pyramid has how many faces?**

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4 **A square pyramid has how many vertices?**

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5 **A triangular prism has how many faces?**

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6 **A triangular prism has how many edges?**

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7 **Which shape has 9 edges and 6 vertices: a triangular prism or a square pyramid?**

A Square pyramid

B Triangular prism

C Cube

D Cylinder

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8 **How many edges does a cylinder have?**

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9

Which shape has no vertices and no edges?

A Cube

B Cone

C Sphere

D Cylinder

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10

How many edges does a cone have?

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ANSWER KEY

1. 6

2. 4

3. 5

4. 5

5. 5

6. 9

7. Triangular prism

8. 2

9. Sphere

10. 1

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