MATHEMATICS · KINDERGARTEN TO GRADE 3

Basic spatial reasoning

Difficulty level: Easy

Mathematics: Kindergarten to Grade 3

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Overview of the concept

This is how you picture shapes turning, fitting together, or moving in your head. Solving a puzzle, packing a suitcase, or reading a map all need you to imagine how things look from another angle. It is a skill you use constantly without noticing, and it is essential for building, design, and navigation.

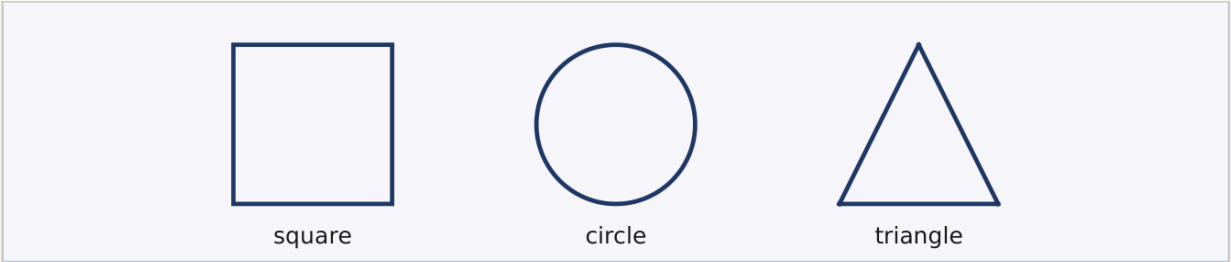


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Worked examples

EXAMPLE 1

Q Which shape fits in the square hole?



SOLUTION

Count the hole: 4 equal sides, 4 corners.

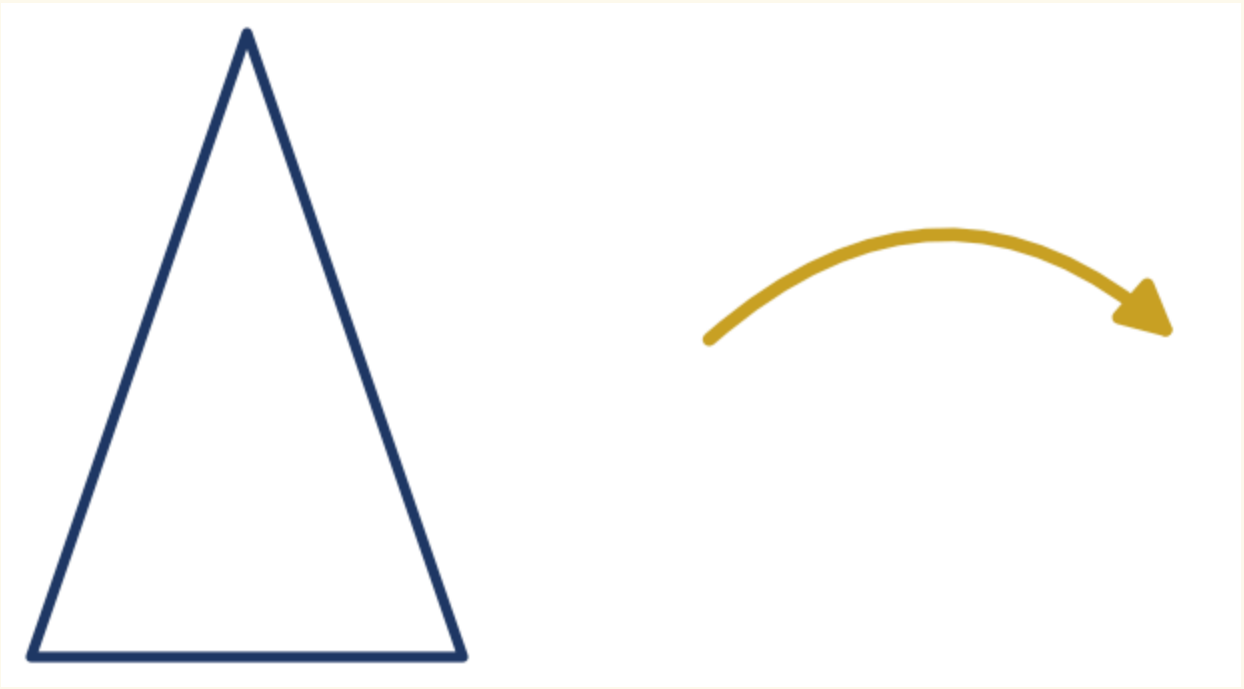
A circle has no corners, so it leaves gaps. A triangle has only 3 corners, so it leaves a corner empty.

The square has 4 sides and 4 corners, so it fits exactly.

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EXAMPLE 2

Q Turn a triangle upside down. What changes?



SOLUTION

The point moves from the top to the bottom.

The sides and corners do not change: still 3 sides, still 3 corners.

So it is still a triangle, just pointing down. Turning a shape does not change what it is.

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Practice questions

1 **Will a round block fit exactly through a square hole? Explain why or why not.**

- **A** Yes, a circle fits exactly in a square hole.
- **B** No, a circle leaves gaps in the corners of a square hole.
- **C** No, a circle is too big for the hole.
- **D** Yes, a circle has four corners like a square.

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2 Two square tiles are placed side by side to make one bigger shape. What shape is the pair of tiles together?

- **A** A square
- **B** A rectangle
- **C** A triangle
- **D** A circle

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3 A flag shows an arrow pointing right. Turn the flag upside down. Which way does the arrow point now?

- **A** Right
- **B** Up
- **C** Left
- **D** Down

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4 A ball and a box are both placed at the top of a slope. Which one rolls down, and why?

- **A** The box, because it is square
- **B** The ball, because it is round with no corners
- **C** Neither, because both are too heavy
- **D** Both, because both have flat sides

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5 Draw a square on a piece of paper, then turn the paper a quarter turn. Is the shape still a square?

- **A** Yes
- **B** No, it becomes a rectangle.
- **C** No, it becomes a triangle.
- **D** No, it becomes a circle.

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6

Which shape fits exactly in a round hole?

A Square

B Triangle

C Circle

D Rectangle

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7

A square sandwich is cut in half from one corner to the opposite corner. What shape are the two pieces?

A Two squares

B Two triangles

C Two rectangles

D Two circles

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8 Flip a triangle over, like turning a page. How many corners does it have now?

- **A** 3 corners, the same as before
- **B** 2 corners
- **C** 4 corners
- **D** No corners

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9 Two triangles are joined together along a side to make a shape with four equal sides and four right angles. What shape is it?

- **A** A triangle
- **B** A pentagon
- **C** A square
- **D** A hexagon

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10

Slide a triangle across the page without turning it or flipping it. Does it look the same as before?

A No, sliding turns it upside down.

B Yes, sliding a shape does not change how it looks.

C No, sliding makes it bigger.

D No, sliding changes it into a different shape.

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ANSWER KEY

1. No, a circle leaves gaps in the corners of a square hole.
2. A rectangle
3. Left
4. The ball, because it is round with no corners
5. Yes
6. Circle
7. Two triangles
8. 3 corners, the same as before
9. A square
10. Yes, sliding a shape does not change how it looks.

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