

Mastering Area and Perimeter with Max the Monkey

Learning objective: To calculate the perimeter and area of rectangles and composite rectilinear shapes, and solve challenging problems involving missing lengths.

Use these flashcards to test your knowledge of geometry. Max the Monkey has provided these questions to help you sharpen your mathematical reasoning skills.

What is the definition of Perimeter?

The total distance around the outside of a 2D shape, measured in linear units like cm or m.

How do you calculate the area of a rectangle?

Multiply the length by the width ($\text{Length} \times \text{Width} = \text{Area}$).

Max has a rectangular garden measuring 8m by 5m. What is the perimeter?

26m ($8 + 5 + 8 + 5 = 26$).

A square has an area of 64cm^2 . What is the length of one side?

8cm (because $8 \times 8 = 64$).

What does 'rectilinear' mean in the context of shape geometry?

A shape where all sides meet at right angles (90 degrees).

If a rectangle has an area of 40cm^2 and a width of 5cm, what is its perimeter?

26cm. ($\text{Length} = 40 \div 5 = 8\text{cm}$. $\text{Perimeter} = 8 + 5 + 8 + 5 = 26\text{cm}$).

Explain why the units for area are always squared (e.g., cm^2).

Because area measures the number of 1cm by 1cm squares that fit inside a 2D surface, involving two dimensions being multiplied together.

How can you calculate the area of a composite L-shaped polygon?

Split the shape into two or more smaller rectangles, calculate the area of each, and then find the sum of those areas.

Compare and contrast: How do area and perimeter change if you double the side length of a square?

The perimeter doubles, but the area quadruples (becomes four times larger).

Justify your answer: Can two different rectangles have the same area but different perimeters?

Yes. For example, a 2×6 rectangle and a 3×4 rectangle both have an area of 12cm^2 , but their perimeters are 16cm and 14cm respectively.

What might happen if you try to calculate the area of a triangle using the rectangle formula ($L \times W$)?

You would get a result that is exactly double the actual area; you must divide by two to get the correct area for a triangle.

Max is designing a fence for a rectangular field with a perimeter of 30m. If one side is 10m, what is the length of the adjacent side?

5m. ($10 + 10 = 20$. $30 - 20 = 10$. $10 \div 2 = 5$).