MATHEMATICS · GRADES 4-6

Perimeter of irregular shapes

Difficulty level: Intermediate

Mathematics: Grades 4-6

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Overview of the concept

This is how you work out how much fencing you need around a garden bed with corners and steps, or how much trim goes around an oddly shaped room. A garden bed is rarely a neat rectangle, so you add up each side one at a time instead of using a shortcut that only works for squares. A carpenter measures the trim for a room with a bay window the same way, side by side. Adding up the sides is slower than a formula, but it works on any shape, no matter how many corners it has.



Rule

The perimeter of a shape is the total distance around it.

Trace around the shape, list every side once, and add all the side lengths together.

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Worked examples

EXAMPLE 1

Q A garden has five sides: 6, 4, 6, 4, 3 metres. What is its perimeter?

SOLUTION

The perimeter is how far it is all the way around the garden. Go around the garden once, jotting down each side as you pass it, then add them all up.

6 + 4 + 6 + 4 + 3 = 23

The perimeter is 23 m.

EXAMPLE 2

Q A shape has a perimeter of 30 m. Four of its sides are 6, 6, 5, and 5 m. How long is the fifth side?

SOLUTION

Add the sides you know, then take that away from the perimeter. What is left is the missing side.

6 + 6 + 5 + 5 = 22, 30 − 22 = 8

The fifth side is 8 m.

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Practice questions

1. A shape has sides 5, 3, 5, 3, 2 units long. What is its perimeter?

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2. An L-shaped garden has sides 8, 5, 3, 3, 5, 2 m. What is its perimeter?

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3. A shape has a perimeter of 36 m. Four of its sides are 7, 7, 6, 6 m. How long is the fifth side?

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4 Tom adds 5 + 3 + 5 + 3 = 16 for a five-sided shape with sides 5, 3, 5, 3, 4. What is the correct perimeter?

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5 A garden fence runs 7, 5, 7, 5, 4 m around five sides. How much fencing is needed?

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6 A shape drawn on grid paper has sides 4, 4, 2, 2, 2, 2 units. What is its perimeter?

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7 Shape A has a perimeter of 18. Shape B has sides 5, 5, 5, 5. Which shape has the larger perimeter?

A Shape A

B Shape B

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8 A rectangular room is 5 m long and 4 m wide. How much trim goes around it?

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9 A shape has a perimeter of 24 and all of its sides are 4 long. How many sides does it have?

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10 **A plot of land has sides 10, 8, 10, 8, 6 m. What is its perimeter?**

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ANSWER KEY

1. 18

2. 26

3. 10

4. 20

5. 28

6. 16

7. Shape B

8. 18

9. 6

10. 42

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