

WA4MMGME1

Non-spatial measurement

Core + Challenge

Perimeter of Composite Shapes

I can find the perimeter of L-shaped (composite) figures by working with the overall bounding rectangle.

Name: _____ Date: _____ Score: / 53

Key idea

L-shaped (composite) figures: many L-shapes are made by cutting a rectangular notch out of one corner of a bigger rectangle. A useful fact: the perimeter of the L-shape is exactly the **same** as the perimeter of the original (uncut) rectangle — the two outer sides you shortened are replaced by two new inner sides of the same total length. So: **Perimeter = 2 × (bounding rectangle's length + width)**. The notch size is not needed.

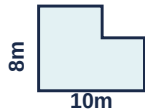
A

Fluency *practise the skill*

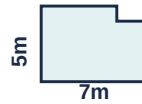
/16 marks

Each L-shape is made from a bounding (outer) rectangle with a corner notch cut out. Find the perimeter of the L-shape (the notch size is given but not needed).

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1. Bounding rectangle $10\text{m} \times 8\text{m}$; notch $4\text{m} \times 3\text{m}$ cut out. Perimeter = ?



9. Bounding rectangle $7\text{m} \times 5\text{m}$; notch $2\text{m} \times 1\text{m}$ cut out. Perimeter = ?



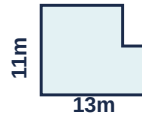
2. Bounding rectangle $12\text{m} \times 7\text{m}$; notch $3\text{m} \times 2\text{m}$ cut out. Perimeter = ?



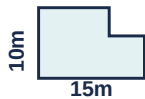
10. Bounding rectangle $16\text{m} \times 9\text{m}$; notch $4\text{m} \times 4\text{m}$ cut out. Perimeter = ?



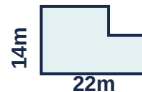
3. Bounding rectangle $9\text{m} \times 6\text{m}$; notch $2\text{m} \times 2\text{m}$ cut out. Perimeter = ?



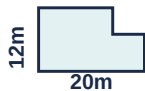
11. Bounding rectangle $13\text{m} \times 11\text{m}$; notch $3\text{m} \times 5\text{m}$ cut out. Perimeter = ?



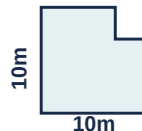
4. Bounding rectangle $15\text{m} \times 10\text{m}$; notch $5\text{m} \times 4\text{m}$ cut out. Perimeter = ?



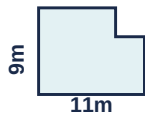
12. Bounding rectangle $22\text{m} \times 14\text{m}$; notch $8\text{m} \times 6\text{m}$ cut out. Perimeter = ?



5. Bounding rectangle $20\text{m} \times 12\text{m}$; notch $6\text{m} \times 5\text{m}$ cut out. Perimeter = ?



13. Bounding rectangle $10\text{m} \times 10\text{m}$; notch $3\text{m} \times 3\text{m}$ cut out. Perimeter = ?



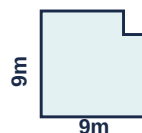
6. Bounding rectangle $11\text{m} \times 9\text{m}$; notch $3\text{m} \times 3\text{m}$ cut out. Perimeter = ?



14. Bounding rectangle $17\text{m} \times 12\text{m}$; notch $6\text{m} \times 4\text{m}$ cut out. Perimeter = ?



7. Bounding rectangle $14\text{m} \times 8\text{m}$; notch $4\text{m} \times 2\text{m}$ cut out. Perimeter = ?



15. Bounding rectangle $9\text{m} \times 9\text{m}$; notch $2\text{m} \times 2\text{m}$ cut out. Perimeter = ?



8. Bounding rectangle $18\text{m} \times 6\text{m}$; notch $5\text{m} \times 3\text{m}$ cut out. Perimeter = ?



16. Bounding rectangle $19\text{m} \times 11\text{m}$; notch $7\text{m} \times 5\text{m}$ cut out. Perimeter = ?

B

Core *apply the skill to problems*

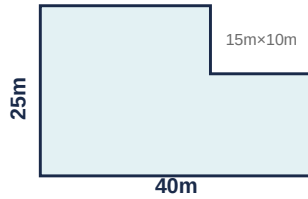
/21 marks

1

A park is L-shaped. It was originally a rectangle 40m long and 25m wide, but a rectangular corner of 15m by 10m was removed to make way for a playground. What is the perimeter of the park?

[3 marks]

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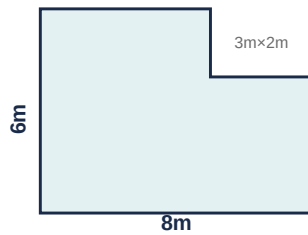


Answer: _____

2

A room is L-shaped. The bounding rectangle is 8m by 6m, with a 3m by 2m corner cut out for a built-in cupboard. (a) What is the perimeter of the room? (b) Skirting board costs \$12 per metre. What is the total cost of skirting the room?

[4 marks]

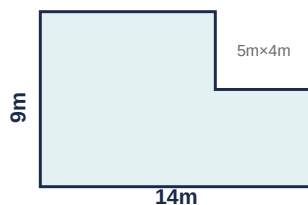


Answer: _____

3

An L-shaped courtyard has a bounding rectangle of 14m by 9m with a 5m by 4m notch removed. What length of fencing is needed to go all the way around the courtyard?

[3 marks]



Answer: _____

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4

A sports field is shaped like a large rectangle, 60m by 40m, with a 20m by 15m rectangular section removed from one corner for storage sheds. (a) Find the perimeter of the field. (b) A runner jogs around the perimeter of the field 3 times. How far does the runner run in total?

[4 marks]

Answer: _____

5

A garden bed is L-shaped, with a bounding rectangle of 7m by 5m and a 2m by 2m corner notch removed for a pond. Edging costs \$9 per metre. What is the total cost of the edging needed around the garden bed?

[3 marks]

Answer: _____

6

An L-shaped patio has a bounding rectangle of 11m by 8m, with a 4m by 3m notch removed for a tree. (a) Find the perimeter of the patio. (b) Explain in one sentence why you did not need to use the 4m and 3m notch measurements to find the perimeter.

[4 marks]

Answer: _____

C

Reasoning *explain, justify and check*

/9 marks

1

Explain why cutting a rectangular notch out of the corner of a rectangle does not change its perimeter.

[2 marks]

2

A student says that because material was removed from a shape, the shape's perimeter must be smaller than the original rectangle's. Explain why this is not true for an L-shaped notch cut from a corner.

[2 marks]

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3

Describe the steps you would use to find the perimeter of an L-shaped figure where you are given the size of the overall bounding rectangle and the size of the notch cut from a corner.

[2 marks]

4

Two L-shaped gardens both have bounding rectangles of 12m by 8m, but one has a 2m by 2m notch removed and the other has a 5m by 4m notch removed. A student says the garden with the bigger notch removed must have a smaller perimeter. Is this correct? Explain.

[3 marks]

D

Challenge *multi-step and problem-solving*

/7 marks

1

An L-shaped figure has a perimeter of 50m. Its bounding rectangle is 18m long. What is the width of the bounding rectangle?

[2 marks]

Answer: _____

2

Two different notches are cut from the same corner of a 16m by 10m rectangle, one at a time, to make two different L-shapes. Explain why both L-shapes have the same perimeter, and state what that perimeter is.

[2 marks]

Answer: _____

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3

A shape is made by cutting two separate rectangular notches from two different corners of a 20m by 15m rectangle (not touching each other). What is the perimeter of the resulting shape, and why?

[3 marks]

Answer: _____

How did I go?

Fluency ____/16 Core ____/21 Reasoning ____/9 Challenge ____/7 **Total ____/53**

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