Year 4 maths: Perimeter of shapes made from rectangles (Hard)

Maths · Measurement
Level: Hard

Student: _____ Date: _____

Instructions
- There are 10 questions. Read each one carefully.
- Write your answers on this paper. Use the space under a question to work it out.
- A grown-up can read a question aloud — that's fine.
- The answers are at the end. Check them together when you have finished.

Questions

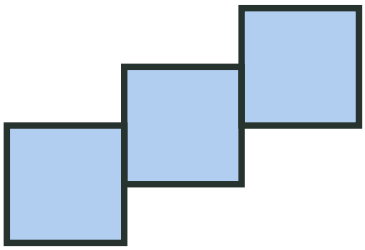
1. Eight square tiles with 3 cm sides are laid in one row. What is the perimeter of the row?

Answer: _____ cm

Working:

2. Three squares with 6 cm sides make a staircase. Each square touches the next along half of its side. What is the perimeter of the staircase?

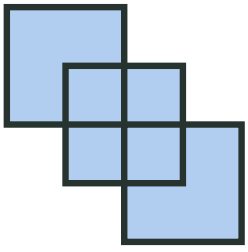
Circle one answer.



○ **A** 72 cm ○ **B** 48 cm ○ **C** 30 cm
○ **D** 66 cm ○ **E** 60 cm

3. Three squares with 10 cm sides go down a slope. Each is moved 5 cm across and 5 cm down from the one before. What is the perimeter of the outline?

Circle one answer.



○ **A** 120 cm ○ **B** 80 cm ○ **C** 40 cm ○ **D** 100 cm
○ **E** 60 cm

4. A card is 16 cm by 12 cm. A picture leaves a 2 cm border all the way round. What size is the picture?

Circle one answer.

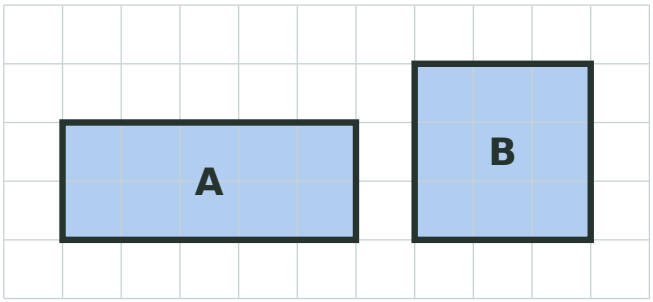
○ **A** 14 cm by 10 cm ○ **B** 12 cm by 8 cm ○ **C** 20 cm by 16 cm

○ **D** 16 cm by 12 cm ○ **E** 8 cm by 4 cm

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5. Rectangle A and square B are drawn on this grid. Rectangle A has a perimeter of 42 cm. What is the perimeter of square B?

Circle one answer.

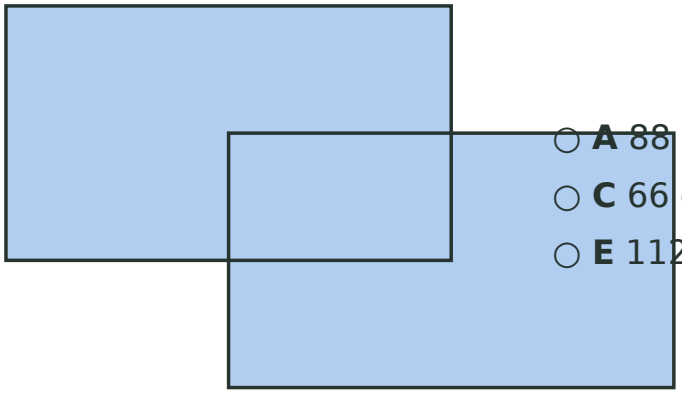


○ **A** 27 cm ○ **B** 81 cm ○ **C** 42 cm ○ **D** 36 cm ○ **E** 12 cm

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6. Two identical rectangles, each 14 cm long and 8 cm wide, overlap. A corner of each rectangle is at the exact centre of the other. What is the perimeter of the outline?

Circle one answer.



○ **A** 88 cm ○ **B** 77 cm

○ **C** 66 cm ○ **D** 33 cm

○ **E** 112 cm

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7. A rectangular bike track around a park is 120 m long and 70 m wide. Mia rides around the track 3 times. How far does she ride?

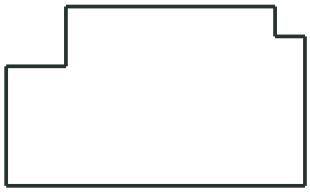
Circle one answer.

○ **A** 570 m ○ **B** 930 m ○ **C** 8400 m ○ **D** 380 m ○ **E** 1140 m

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8. Hamish draws a rectangle 10 cm long and 6 cm wide. He cuts a 2 cm square from one corner and a 1 cm square from another corner. What is the perimeter of the new shape?

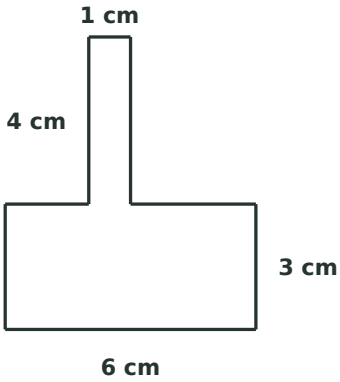
Circle one answer.



○ **A** 16 cm ○ **B** 38 cm ○ **C** 55 cm ○ **D** 26 cm ○ **E** 32 cm

9. Tegan draws a rectangle 6 cm long and 3 cm wide. She joins a 4 cm by 1 cm strip so that only the 1 cm end of the strip touches the top of the rectangle, and the strip sticks straight up. What is the perimeter of the new shape?

Circle one answer.



○ **A** 27 cm ○ **B** 28 cm ○ **C** 18 cm ○ **D** 22 cm ○ **E** 26 cm

10. Priya's poster is a rectangle 18 cm long. Its width is one-third of its length. What is the perimeter of the poster?

Circle one answer.

○ **A** 72 cm ○ **B** 48 cm ○ **C** 108 cm ○ **D** 24 cm ○ **E** 42 cm

Answer key

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1. 54 cm

The row is 8 × 3 = 24 cm long and 3 cm wide. 24 + 3 + 24 + 3 = 54 cm.

2. E — 60 cm

All three: 3 × 24 = 72 cm. Each of the 2 joins is 3 cm and is counted on both squares, so take away 3 + 3 twice: 72 − 12 = 60 cm. (Or: it fits a box 18 cm by 12 cm: 18 + 12 + 18 + 12 = 60.)

3. B — 80 cm

The outline fits in a box 10 + 5 + 5 = 20 cm wide and 20 cm tall. The steps don't change the distance round: 20 × 4 = 80 cm.

4. B — 12 cm by 8 cm

16 − 2 − 2 = 12 cm and 12 − 2 − 2 = 8 cm.

5. D — 36 cm

Round A there are 5 + 2 + 5 + 2 = 14 grid sides. 42 ÷ 14 = 3, so each grid side is 3 cm. Round B there are 3 + 3 + 3 + 3 = 12 grid sides: 12 × 3 = 36 cm.

6. C — 66 cm

The second rectangle is moved 7 cm across and 4 cm down. The outline fits in a box 21 cm long and 12 cm tall: 21 + 12 + 21 + 12 = 66 cm. (Or: 44 + 44 = 88 cm, take away the hidden lines, 7 + 4 + 7 + 4 = 22 cm: 66 cm.)

7. E — 1140 m

One lap: 120 + 70 + 120 + 70 = 380 m. Three laps: 380 × 3 = 1140 m.

8. E — 32 cm

A corner cut swaps edge for new edge of the same length. So the perimeter is the rectangle's: 10 + 6 + 10 + 6 = 32 cm.

9. E — 26 cm

Rectangle: 6 + 3 + 6 + 3 = 18 cm. Strip: 4 + 1 + 4 + 1 = 10 cm. The 1 cm where they touch is hidden on both: 18 + 10 − 1 − 1 = 26 cm.

10. B — 48 cm

18 ÷ 3 = 6, so the poster is 6 cm wide. Perimeter: 18 + 6 + 18 + 6 = 48 cm.