

WA7MMGTW1

Two-dimensional space

Core + Challenge

Perimeter and Area of Rectangles — Marking Key

I can find the perimeter and area of rectangles and squares, work backwards from area, and use the correct units.

For tutors and parents. Award method marks for correct working even if the final answer is wrong.

Marks summary

Section A Fluency: 16 Section B Core: 22 Section C Reasoning: 9 Section D Challenge: 11 **Total: 58**

Fluency: 1 mark each; accept an equivalent unsimplified answer for half credit at tutor's discretion.

A

Fluency *answers and working*

/ 16 marks

Q	Answer	Working
1	26 cm	$2 \times (8 + 5) = 26 \text{ cm}$
2	40 cm ²	$8 \times 5 = 40 \text{ cm}^2$
3	81 m ²	$9 \times 9 = 81 \text{ m}^2$
4	30 cm	$4 \times 7.5 = 30 \text{ cm}$
5	42 m ²	$12 \times 3.5 = 42 \text{ m}^2$
6	31 m	$2 \times (12 + 3.5) = 31 \text{ m}$
7	12 cm ²	$2.4 \times 5 = 12 \text{ cm}^2$
8	22 cm	$2 \times 11 = 22 \text{ cm}$
9	6 cm	$48 \div 8 = 6 \text{ cm}$
10	8 m	$8 \times 8 = 64 = 8 \text{ m}$
11	6 cm	$30 \div 2 = 15; 15 - 9 = 6 \text{ cm}$
12	81 cm ²	side $36 \div 4 = 9; 9 \times 9 = 81 \text{ cm}^2$
13	300 mm ²	$15 \times 20 = 300 \text{ mm}^2$
14	1.8 m ²	$1.5 \times 1.2 = 1.8 \text{ m}^2$
15	250 cm	$80 \text{ cm}; 2 \times (80 + 45) = 250 \text{ cm}$
16	100 m ²	$25 \times 4 = 100 \text{ m}^2$

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B

Core answers, working and marks

/ 22 marks

Q	Answer	Working / sample response	Marks
1	P = 46 m; A = 126 m ²	$2 \times (14 + 9) = 46$ $14 \times 9 = 126$ <i>1 mark each, with units</i>	2
2	12.2 m; 9 m ²	$2 \times (3.6 + 2.5) = 12.2$ $3.6 \times 2.5 = 9$ <i>1 mark each</i>	2
3	225 cm ²	side = $60 \div 4 = 15$ $15 \times 15 = 225$ <i>1 mark: side 15</i> <i>1 mark: 225 cm²</i>	2
4	\$547.20	$4.5 \times 3.2 = 14.4 \text{ m}^2$ $14.4 \times 38 = 547.20$ <i>1 mark: area</i> <i>1 mark: cost</i>	2
5	420 m ² ; 86 m	$28 \times 15 = 420$ $2 \times (28 + 15) = 86$ <i>1 mark each</i>	2
6	\$1440	P = $2 \times 30 = 60 \text{ m}$ $60 \times 24 = 1440$ <i>1 mark: perimeter</i> <i>1 mark: cost</i>	2
7	180 tiles	$300 \text{ cm} \div 20 = 15 \text{ tiles along}$ $240 \text{ cm} \div 20 = 12 \text{ tiles across}$ $15 \times 12 = 180$ <i>1 mark: convert</i> <i>1 mark: 15 and 12</i> <i>1 mark: 180</i>	3
8	6 cm; 36 cm	$72 \div 12 = 6$ $2 \times (12 + 6) = 36$ <i>1 mark each</i>	2
9	0.54 m ² = 5400 cm ²	$0.6 \times 0.9 = 0.54$ $60 \times 90 = 5400$ <i>1 mark each</i>	2
10	12.24 m ²	Wall: $5.2 \times 2.7 = 14.04$ Window: $1.5 \times 1.2 = 1.8$ $14.04 - 1.8 = 12.24$ <i>1 mark: wall</i> <i>1 mark: window</i> <i>1 mark: 12.24 m²</i>	3

C Reasoning *sample answers and marking criteria*

/ 9 marks

Q	Answer	Working / sample response	Marks
1	Length vs space covered	Perimeter is a length around the edge (cm). Area counts the squares covering the inside (cm ²). <i>1 mark: meanings</i> <i>1 mark: units</i>	2
2	False – area × 4	$3 \times 4 = 12$; $6 \times 8 = 48$ $48 = 4 \times 12$, so the area is four times as big <i>1 mark: both areas</i> <i>1 mark: × 4</i> <i>1 mark: conclusion</i>	3
3	e.g. 1×9 and 5×5	1×9 : P = 20, A = 9 5×5 : P = 20, A = 25 <i>1 mark each</i>	2
4	$1 \text{ m}^2 = 10\,000 \text{ cm}^2$	A 1 m square is 100 cm by 100 cm, so its area is $100 \times 100 = 10\,000 \text{ cm}^2$. <i>1 mark: 100×100</i> <i>1 mark: 10 000</i>	2

D Challenge *solutions and marking criteria*

/ 11 marks

Q	Answer	Working / sample response	Marks
1	36 cm^2 (6×6)	Length + width = 12: $1 \times 11 = 11$, $2 \times 10 = 20$, $3 \times 9 = 27$, $4 \times 8 = 32$, $5 \times 7 = 35$, $6 \times 6 = 36$ <i>1 mark: $l + w = 12$</i> <i>1 mark: options</i> <i>1 mark: 36</i>	3
2	44 m^2	Outer: $14 \times 10 = 140$ Lawn: $12 \times 8 = 96$ $140 - 96 = 44$ <i>1 mark: 14×10</i> <i>1 mark: subtract</i> <i>1 mark: 44</i>	3
3	Square, by 8 cm	Area 64, so the square has side 8: P = 32 Rectangle P = 40; $40 - 32 = 8$ <i>1 mark: side 8</i> <i>1 mark: 8 cm</i>	2
4	108 m^2	$w + 3w + w + 3w = 8w = 48$, so $w = 6$ $l = 18$; $A = 18 \times 6 = 108$ <i>1 mark: $8w = 48$</i> <i>1 mark: 6 and 18</i> <i>1 mark: 108</i>	3