Area, Perimeter & Volume: Hard Practice Paper 7 Answers

Q#	Answer	Explanation
1	C	Cut the shape along the line 3 squares up. The bottom rectangle is 10 by 3, giving 10 × 3 = 30 squares, and the block above it is 4 by 3, giving 4 × 3 = 12. The area is 30 + 12 = 42 square centimetres.
2	C	The top and bottom faces are 9 by 4, so together they give 36 × 2 = 72 square centimetres. That leaves 202 − 72 = 130 square centimetres for the four upright faces. Two of them are 9 cm wide and two are 4 cm wide, so each centimetre of height adds 9 + 9 + 4 + 4 = 26 square centimetres. Then 130 ÷ 26 = 5 centimetres.
3	B	A path 1 m wide adds a metre at each end, making the outside 12 m by 8 m, and 12 × 8 = 96 square metres, which matches. A path 2 m wide would give 14 by 10, which is 140 square metres, far too much.
4	E	All three measurements are multiplied by 3, so the volume is multiplied by 3 × 3 × 3 = 27. Checking with a cube of side 2 cm: it holds 8 cubic centimetres, and a cube of side 6 cm holds 216, and 8 × 27 = 216.
5	C	The rectangle has an area of 14 × 9 = 126 square centimetres. The triangle covers half of 6 × 9 = 54, which is 54 ÷ 2 = 27 square centimetres. What is left is 126 − 27 = 99 square centimetres.
6	B	Only the water is wanted, so use its depth of 12 cm rather than the full 30 cm height. The water forms a cuboid of 25 × 20 × 12 = 6000 cubic centimetres, which is 6000 ÷ 1000 = 6 litres.
7	C	Stand the boxes with the 10 cm edge upright. Along the 30 cm side there is room for 30 ÷ 5 = 6, along the 20 cm side for 20 ÷ 5 = 4, and up the 20 cm height for 20 ÷ 10 = 2. That gives 6 × 4 × 2 = 48 boxes.
8	C	The area of a parallelogram is the base multiplied by the perpendicular height, so the base is the area divided by the height: 84 ÷ 7 = 12 centimetres.

myfreeschool

9	D	The wall has an area of 7 × 3 = 21 square metres. Two tins cover only 18 square metres, so 3 tins are needed, and part of a tin cannot be bought. The cost is 3 × 16 = 48 pounds.
10	D	One face has an area of 384 ÷ 6 = 64 square centimetres, so the edge is 8 cm because 8 × 8 = 64. The volume is then 8 × 8 × 8 = 512 cubic centimetres.
11	B	The field covers 60 × 45 = 2700 square metres. If two thirds is planted then one third is not, and 2700 ÷ 3 = 900 square metres.
12	C	Count the squares along each side in turn: 8, then 5, then 5, then 3, then 3, then 2. Adding them gives 8 + 5 + 5 + 3 + 3 + 2 = 26 centimetres.
13	B	Divide by 10,000 to change square centimetres into square metres: 250000 ÷ 10000 = 25 square metres.
14	A	Work each one out. The square gives 11 × 11 = 121 square centimetres. The two rectangles give 120 each, the triangle gives half of 240, which is 120, and the parallelogram gives 12 × 10 = 120. Four of them tie on 120, so the square is the greatest.
15	C	If the width is w then the length is 3w, so the area is three times the width squared. Since 108 ÷ 3 = 36 and 6 × 6 = 36, the width is 6 cm and the length is 3 × 6 = 18 centimetres. The perimeter is 18 + 6 + 18 + 6 = 48 centimetres.

myfreeschool