Area, Perimeter & Volume: Hard Practice Paper 6 Answers

Q#	Answer	Explanation
1	A	Split the shape with a horizontal cut. The bottom rectangle is 9 squares by 4, giving 9 × 4 = 36 squares, and the part above it is 5 squares by 3, giving 5 × 3 = 15. Altogether the area is 36 + 15 = 51 square centimetres.
2	D	The top and the bottom are squares of area 5 × 5 = 25, giving 25 × 2 = 50 square centimetres. The four upright faces each measure 5 cm by 8 cm, so they give 40 × 4 = 160. The total is 50 + 160 = 210 square centimetres.
3	C	The border adds 3 cm at each end, so the outside measures 15 + 6 = 21 centimetres by 10 + 6 = 16 centimetres. Its perimeter is 21 + 16 + 21 + 16 = 74 centimetres. Adding 3 cm only once to each side is the usual mistake.
4	D	When both the length and the width are multiplied by 3, the area is multiplied by 3 × 3 = 9. So the new area is 12 × 9 = 108 square centimetres.
5	C	The rectangle has an area of 12 × 8 = 96 square centimetres. The triangle has half that base and height product, so its area is 96 ÷ 2 = 48. What is left is 96 − 48 = 48 square centimetres.
6	C	The whole tank holds 60 × 40 × 50 = 120000 cubic centimetres, which is 120000 ÷ 1000 = 120 litres. Half of that is 120 ÷ 2 = 60 litres.
7	C	Match each measurement of the box to the crate. Along the 24 cm side there is room for 24 ÷ 6 = 4 boxes, along the 20 cm side for 20 ÷ 4 = 5, and up the 12 cm side for 12 ÷ 3 = 4. That gives 4 × 5 × 4 = 80 boxes.
8	E	The parallelogram has an area of 9 × 6 = 54 square centimetres, while the triangle has half of that, which is 27. Since 54 ÷ 27 = 2, the parallelogram is twice as big, and that stays true whatever the base and height are.
9	C	The floor covers 5 × 3.5 = 17.5 square metres. Since only whole square metres can be bought, 18 must be ordered, and 18 × 23 = 414 pounds.

myfreeschool

10	D	First find the height. The base covers 12 × 5 = 60 square centimetres, so the height is 360 ÷ 60 = 6 centimetres. The three different faces measure 12 by 5, 12 by 6 and 5 by 6, giving 60, 72 and 30 square centimetres. Each appears twice, so the total is 60 + 72 + 30 = 162, and then 162 × 2 = 324 square centimetres.
11	D	The lawn starts at 20 × 15 = 300 square metres. A quarter of that is 300 ÷ 4 = 75 square metres dug up, so what is left is 300 − 75 = 225 square metres.
12	C	The base runs from 1 to 8, so it is 7 squares long, and the top corner is 6 squares above it. Half the base times the height gives 7 × 6 = 42, and then 42 ÷ 2 = 21 square centimetres.
13	B	The field covers 250 × 400 = 100000 square metres. Each hectare is 10,000 square metres, so divide: 100000 ÷ 10000 = 10 hectares.
14	A	The cube holds 6 × 6 × 6 = 216 cubic centimetres and the cuboid holds 8 × 5 × 5 = 200. The cube is the larger, by 216 − 200 = 16 cubic centimetres.
15	C	Look for two numbers 4 apart that multiply to 45. Since 5 × 9 = 45 and 9 is 4 more than 5, the rectangle is 9 cm by 5 cm. Its perimeter is 9 + 5 + 9 + 5 = 28 centimetres.

myfreeschool