Area, Perimeter & Volume: Medium Practice Paper 8 Answers

Q#	Answer	Explanation
1	C	Split the staircase into three rectangles lying one above another. The bottom is 6 by 2, giving 12 squares, the middle is 4 by 2, giving 8, and the top is 2 by 2, giving 4. Altogether that is 12 + 8 + 4 = 24 square centimetres.
2	C	For a parallelogram, multiply the base by the perpendicular height: 12 × 4 = 48 square centimetres. The 5 cm slanting side is not the height, so it is not used here.
3	C	Count the squares along each of the six sides in turn: 4, then 2, then 3, then 3, then 7, then 5. Adding them gives 4 + 2 + 3 + 3 + 7 + 5 = 24 centimetres.
4	D	The length and the width must add to 10, since the perimeter is 20. The choices are 1 and 9, 2 and 8, 3 and 7, 4 and 6, or 5 and 5, giving areas of 9, 16, 21, 24 and 25. The square of side 5 cm gives the greatest area.
5	C	The bottom layer is one cube deep and covers the base of the cuboid, which measures 6 cm by 5 cm. So it holds 6 × 5 = 30 cubes. The whole cuboid is four such layers, giving 120 cubes in total.
6	B	The 6 faces are all the same, so one face has an area of 54 ÷ 6 = 9 square centimetres. A square face of area 9 has sides of 3 cm, because 3 × 3 = 9.
7	B	Divide each price by the number of slabs. Pack A gives 25 ÷ 10 = 2.5 pounds a slab, pack B gives 36 ÷ 15 = 2.4 pounds and pack C gives 50 ÷ 20 = 2.5 pounds. Pack B is the cheapest for each slab.
8	B	The volume starts as 4 × 3 × 2 = 24 cubic centimetres. With the height doubled it becomes 4 × 3 × 4 = 48 cubic centimetres, which is twice as much. Only one measurement has changed, so the volume simply doubles.

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9	B	The base runs from 1 to 7 along the grid, so it is 6 squares long. The top corner is 4 squares above the base, so the height is 4. Half the base times the height gives 6 × 4 = 24, and then 24 ÷ 2 = 12 square centimetres.
10	C	The floor has an area of 3.5 × 2 = 7 square metres. At £18 for each square metre the cost is 7 × 18 = 126 pounds.
11	C	The cuboid holds 6 × 4 × 3 = 72 cubic centimetres and the cube removed holds 2 × 2 × 2 = 8. What is left is 72 − 8 = 64 cubic centimetres.
12	A	A whole square metre is 10,000 square centimetres, so half of one is 10000 ÷ 2 = 5,000 square centimetres.
13	C	Each slab is half a metre across. Along the 6 m length there is room for 6 ÷ 0.5 = 12 slabs, and across the 1 m width there is room for 2, so the path needs 12 × 2 = 24 slabs.
14	A	Work out each perimeter. The square gives 4 × 9 = 36, the rectangle gives 34, the pentagon gives 5 × 8 = 40, the triangle gives 3 × 13 = 39 and the hexagon gives 6 × 6 = 36 centimetres. The pentagon has the greatest perimeter.
15	E	Each small square has sides of 6 cm, since 6 × 6 = 36. Four of them make a larger square two along and two up, so its sides are 6 × 2 = 12 centimetres and its perimeter is 4 × 12 = 48 centimetres.

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