Area, Perimeter & Volume: Medium Practice Paper 6 Answers

Q#	Answer	Explanation
1	C	Split the L-shape into two rectangles. The bottom strip is 6 squares by 2, giving 6 × 2 = 12 squares, and the part standing above it is 3 by 3, giving 3 × 3 = 9 squares. Altogether that is 12 + 9 = 21 square centimetres.
2	D	The area of a parallelogram is the base multiplied by the perpendicular height, not by the slanting side. So the area is 10 × 6 = 60 square centimetres. Using the 7 cm side by mistake would give 70, which is wrong.
3	C	Go round the outside counting squares. The cross has twelve sides and every one of them is 2 squares long, so the perimeter is 12 × 2 = 24 centimetres.
4	D	List the rectangles with an area of 24: 1 by 24, 2 by 12, 3 by 8 and 4 by 6. Their perimeters work out as 50, 28, 22 and 20 centimetres. No pair of whole numbers multiplying to 24 gives a perimeter of 30.
5	C	Work out the two parts and add them together. The cuboid holds 6 × 4 × 2 = 48 cubic centimetres and the cube holds 3 × 3 × 3 = 27, so the whole solid is 48 + 27 = 75 cubic centimetres.
6	E	In each one the length and the width add to 12, so every rectangle really does have a perimeter of 24 cm. Their areas are 11, 20, 27, 32 and 36 square centimetres, so the square is the largest. For a fixed perimeter, the closer a rectangle is to a square, the greater its area.
7	B	The triangle has a base of 6 squares and a height of 4 squares. The area of a triangle is half the base times the height, so work out 6 × 4 = 24 and then halve it: 24 ÷ 2 = 12 square centimetres.
8	B	Every square metre is worth 10,000 square centimetres, so divide to change square centimetres into square metres: 40,000 ÷ 10,000 = 4 square metres.

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9	B	The wall has an area of 8 × 4 = 32 square metres. Two tins would cover only 24 square metres, which is not enough, and three tins cover 36. Part of a tin cannot be bought, so the answer is rounded up to 3 tins.
10	B	The rectangle is 6 × 3 = 18 centimetres long and 3 centimetres wide, so its perimeter is 18 + 3 + 18 + 3 = 42 centimetres. It is not the six separate perimeters added up, because the joined edges now sit inside the shape.
11	C	The rectangle has an area of 14 × 6 = 84 square centimetres. A triangle with the same base and the same height is always exactly half of the rectangle, so its area is 84 ÷ 2 = 42 square centimetres.
12	C	The faces come in three different sizes: 4 by 3, 4 by 2 and 3 by 2, which are 12, 8 and 6 square centimetres. The largest face is 12 square centimetres.
13	C	Folding the square in half leaves a rectangle 12 cm long and 6 cm wide, since 12 ÷ 2 = 6. Its perimeter is 12 + 6 + 12 + 6 = 36 centimetres.
14	B	Multiply the length by the width for each room. The kitchen gives 5 × 3 = 15, the lounge gives 4 × 4 = 16 and the study gives 6 × 2 = 12 square metres. The lounge is the largest, even though the study is the longest room.
15	A	Multiply the three measurements together for each box. They give 120, 128, 120, 120 and 108 cubic centimetres, so the 8 cm by 4 cm by 4 cm box holds the most.

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