

Area

Maths

Level 2

Exam-style practice · 10 questions · 32 marks · Calculator allowed

Remember

Rectangle: length $\times$ width. **Triangle:** $\frac{1}{2} \times$ base $\times$ height (the *perpendicular* height).

Parallelogram: base $\times$ height. **Trapezium:** $\frac{1}{2} \times (a + b) \times h$.

Compound shapes: split into rectangles (or subtract a cut-out from a big rectangle). Label each part's dimensions before you calculate.

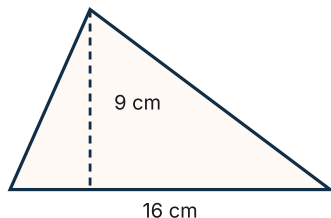
Units: area is in square units – m^2 , cm^2 . $1 m^2 = 10,000 cm^2$. Convert lengths to the same unit *before* multiplying.

Buying materials: area $\div$ coverage per pack $\rightarrow$ round up $\rightarrow$ cost. Add 10% for waste if the question says so.

Section A – Formulas

1. Find the area of: (a) a rectangle 7.5 m by 4.2 m (b) a square of side 65 cm (in cm^2) (c) a parallelogram with base 12 cm and height 5.5 cm (3 marks)

2. Find the area of this triangle.

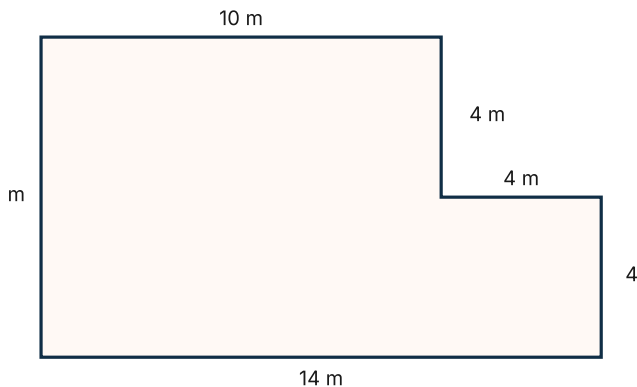


(2 marks)

3. A trapezium-shaped patio has parallel sides of 6 m and 9 m, and the distance between them is 4 m. Find its area. (2 marks)
4. A rectangular photo is 15 cm by 10 cm. It is enlarged so both sides are doubled. How many times bigger is the area? (2 marks)

Section B – Compound shapes

5. The plan shows an L-shaped office floor.



(a) Find the total floor area. (b) Carpet tiles are 50 cm by 50 cm and sold in boxes of 20 for £48. How many boxes are needed, and what is the cost? (6 marks)

6. A wall is 5 m wide and 2.4 m high. It has a window 1.5 m by 1.2 m and a door 0.9 m by 2 m. What area needs painting? (3 marks)

7. A lawn is a rectangle 20 m by 12 m with a semicircular flower bed of radius 3 m cut into one edge. Find the grass area, to 1 decimal place. (Area of a circle = πr^2) (3 marks)

Section C – In context

8. A bedroom floor is 4.2 m by 3.6 m. Laminate flooring comes in packs covering 2.2 m² at £24.99. The shop advises buying 10% extra for cutting. How many packs, and what cost? (4 marks)

9. A tin of paint covers 12 m². A hall has four walls, two of 6 m × 2.5 m and two of 4 m × 2.5 m, needing two coats. How many tins are needed? (4 marks)

10. Turf costs £5.80 per m² and is sold by the whole square metre. A garden is a triangle with base 14 m and height 9 m. What does the turf cost? (3 marks)

Area – Answers

Level 2 · Working shown so you can check your method, not just the final number.

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Section A

1. (a) **31.5 m²** (b) **4,225 cm²** (c) **66 cm²**.
2. $\frac{1}{2} \times 16 \times 9 = \mathbf{72 \text{ cm}^2}$.
3. $\frac{1}{2} \times (6 + 9) \times 4 = \mathbf{30 \text{ m}^2}$.
4. Original 150 cm²; enlarged $30 \times 20 = 600 \text{ cm}^2$. **4 times** bigger (doubling both sides multiplies area by 2×2).

Section B

5. (a) Split: top rectangle $10 \times 4 = 40 \text{ m}^2$; bottom rectangle $14 \times 4 = 56 \text{ m}^2$. Total **96 m²**. (Or $14 \times 8 - 4 \times 4 = 112 - 16 = 96$.) (b) Each tile $0.25 \text{ m}^2 \rightarrow 96 \div 0.25 = 384 \text{ tiles} \div 20 = 19.2 \rightarrow \mathbf{20 \text{ boxes} = \pounds 960}$.
6. Wall 12 m^2 – window 1.8 m^2 – door $1.8 \text{ m}^2 = \mathbf{8.4 \text{ m}^2}$.
7. Rectangle 240 m^2 . Semicircle $= \frac{1}{2} \times \pi \times 3^2 = 14.14 \text{ m}^2$. Grass = **225.9 m²**.

Section C

8. Floor $15.12 \text{ m}^2 \times 1.1 = 16.632 \text{ m}^2$. $\div 2.2 = 7.56 \rightarrow \mathbf{8 \text{ packs} \times 24.99 = \pounds 199.92}$.
9. Walls: $2 \times 15 + 2 \times 10 = 50 \text{ m}^2 \times 2 \text{ coats} = 100 \text{ m}^2$. $100 \div 12 = 8.3 \rightarrow \mathbf{9 \text{ tins}}$.
10. $\frac{1}{2} \times 14 \times 9 = 63 \text{ m}^2 \times 5.80 = \mathbf{\pounds 365.40}$.

Where Level 2 students lose marks on this topic

- Using a sloping side as the triangle's height. Height is the perpendicular distance from the base.
- Splitting a compound shape and then using the whole width for one of the parts.
- Forgetting the second coat, the 10% extra, or to round up to whole packs – the last step is where the final mark sits.