

Costing the Job



The walls of a house need to be painted with masonry paint.
In this activity you will work out the amount of paint needed and how much it will cost.

The paint is sold in 5 litre tins costing £15.99 each.
Each litre of paint covers 8 m^2

Masonry Paint

£15.99 for a 5 litre tin
Coverage: 8 m^2 per litre



The walls of the house are shown in the elevations on pages 2 and 3.
These are all drawn to a scale of 1:100.

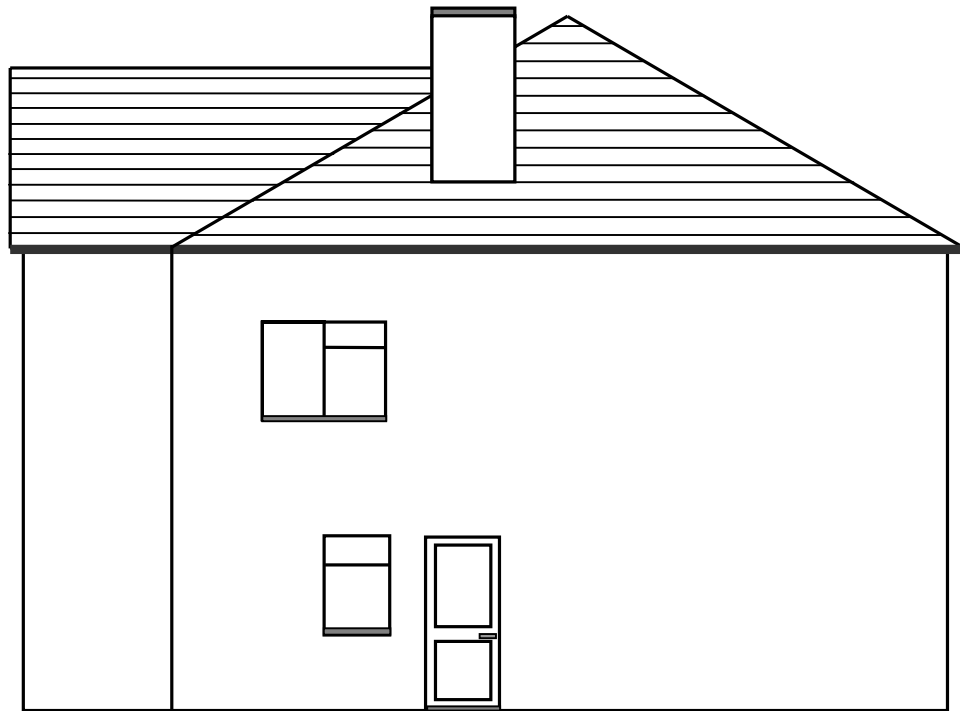
Calculate the total area to be painted and the total cost of the paint.





North Facing Wall

Scale 1:100



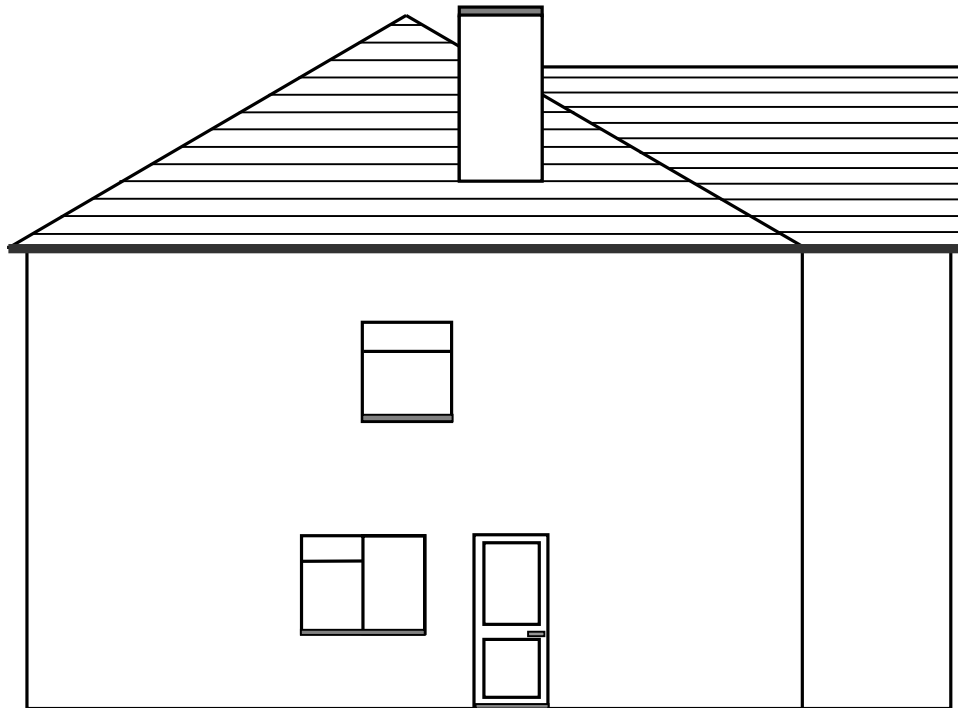
East Facing Wall





South Facing Wall

Scale 1:100



West Facing Wall



Teacher Notes

Unit Intermediate Level, Solving problems in shape and space

Skills used in this activity

- measuring dimensions from scale drawings
- finding areas (rectangle, triangle, trapezium if chimneys are included)
- calculating paint required and cost

Preparation

Students will need a copy of pages 1 to 3, a centimetre ruler, calculator and pen/pencil.

Notes

Students need to be familiar with the term 'elevation' and the formulae for the area of rectangles and triangles. You may wish to show students how to find the area required on one wall, before leaving them to attempt the rest. They should be advised to take measurements correct to the nearest 0.1 cm. The activity can be made more difficult by including the sides of the chimneys.

Answers

North Facing Wall

	Length (m)	Height (m)	Area (m ²)
Whole Wall	11.6	5.6	64.96
Large Windows	2.4	1.2	2.88
Small Window	1.1	1.2	1.32
Door	0.9	2.1	1.89
Garage Door	2.6	2.2	5.72

$$\begin{aligned} \text{Area to be painted} \\ = 47.39 \text{ m}^2 \end{aligned}$$

East Facing Wall

	Length (m)	Height (m)	Area (m ²)
Walls	11.2	5.6	62.72
Upper Window	1.5	1.2	1.8
Lower Window	0.8	1.2	0.96
Door	0.9	2.1	1.89

$$\begin{aligned} \text{Area to be painted} \\ = 58.07 \text{ m}^2 \end{aligned}$$

South Facing Wall

	Length (m)	Height (m)	Area (m ²)
Rectangular Part of Walls	11.6	5.6	64.96
Triangular Part of Wall	5.6	2.3	6.44
Patio Door	3.2	2.1	6.72
Upper Middle Window	2.4	1.2	2.88
Upper Right Window	1.5	1.2	1.8
Lower Left Window	1.1	1.2	1.32
Other (Smallest) Windows	0.8	1.2	0.96

$$\begin{aligned} \text{Area to be painted} \\ = 56.76 \text{ m}^2 \end{aligned}$$

West Facing Wall

	Length (m)	Height (m)	Area (m ²)
Walls	11.2	5.6	62.72
Upper Window	1.1	1.2	1.32
Lower Window	1.5	1.2	1.8
Door	0.9	2.1	1.89

$$\begin{aligned} \text{Area to be painted} \\ = 57.71 \text{ m}^2 \end{aligned}$$

Total area to be painted = 219.93 m²

No of litres = 27.49

No. of tins = 6

Cost of paint = £95.94 ≈ £100



Chimneys

	Length (m)	Height (m)	Area (m ²)
Large Rectangular Sides	2	1	2
Small Rectangular Sides	1.6	1	1.6
Trapezia	Parallel Sides 2, 1.6	0.5	0.9

Total area to be painted on chimneys = 10.8 m²

Total area including chimneys = 230.73 m²

No of litres = 28.84

No. of tins = 6 (as before)

Cost of paint = £95.94 ≈ £100 (as before)

