



- 1 Change 3.5 m^2 to cm^2 .

(1 mark)

$$1 \text{ m}^2 = 100 \text{ cm} \times 100 \text{ cm} = 10\,000 \text{ cm}^2$$

$$3.5 \times 10\,000 = 35\,000 \text{ cm}^2$$

$$\boxed{35000 \text{ cm}^2}$$

- 2 Change $25\,000 \text{ cm}^2$ to m^2 .

(1 mark)

$$1 \text{ m}^2 = 100 \times 100 \text{ cm}^2$$

$$1 \text{ m}^2 = 10\,000 \text{ cm}^2$$

$$25\,000 \div 10\,000 = 2.5$$

$$\boxed{2.5 \text{ m}^2}$$

- 3 Change 6 cm^3 to mm^3 .

(1 mark)

$$1 \text{ cm}^3 = 10 \text{ mm} \times 10 \text{ mm} \times 10 \text{ mm} = 1000 \text{ mm}^3$$

$$6 \times 1000 = 6000 \text{ mm}^3$$

$$\boxed{6000 \text{ mm}^3}$$

- 4 Change 450 mm^2 to cm^2 .

(1 mark)

$$1 \text{ cm}^2 = 10 \times 10 \text{ mm}^2$$

$$1 \text{ cm}^2 = 100 \text{ mm}^2$$

$$450 \div 100 = 4.5$$

$$\boxed{4.5 \text{ cm}^2}$$

5 Use 1 litre = 1000 cm³.

- a. Change 2.4 litres to cm³.
- b. Change 7500 cm³ to litres.

(2 marks)

a)

$$2.4 \times 1000 = 2400$$

$$2400 \text{ cm}^3$$

b)

$$7500 \div 1000 = 7.5$$

$$7.5 \text{ litres}$$

6 Change 0.35 m³ to cm³.

(2 marks)

$$1 \text{ m}^3 = 100 \times 100 \times 100 \text{ cm}^3$$

$$1 \text{ m}^3 = 1\,000\,000 \text{ cm}^3$$

$$0.35 \times 1\,000\,000 = 350\,000$$

$$350\,000 \text{ cm}^3$$

7 1 km² = 1 000 000 m² and 1 hectare = 10 000 m².

- a. A nature reserve has an area of 0.6 km². Write this area in m².
- b. Write the area of the reserve in hectares.
- c. A farmer owns 3.5 hectares of land. Write this in m².

(3 marks)

a)

$$0.6 \times 1\,000\,000 = 600\,000$$

$$600\,000 \text{ m}^2$$

b)

$$600\,000 \div 10\,000 = 60$$

$$60 \text{ hectares}$$

c)

$$3.5 \times 10\,000 = 35\,000$$

$$35\,000 \text{ m}^2$$

- 8 A rectangular water tank measures 2 m by 1.5 m by 80 cm. $1 \text{ m}^3 = 1000$ litres.
Work out how many litres of water the tank holds when it is full.

(3 marks)

Same units first: $80 \text{ cm} = 0.8 \text{ m}$

$$V = 2 \times 1.5 \times 0.8$$

$$V = 2.4 \text{ m}^3$$

$$2.4 \times 1000 = 2400$$

2400 litres

- 9 A rectangular floor measures 3.2 m by 2.4 m. It is covered with square tiles of side 20 cm.
Work out how many tiles are needed. Assume there is no gap between tiles and none are cut.

(4 marks)

$$\text{floor} = 3.2 \times 2.4 = 7.68 \text{ m}^2$$

$$1 \text{ m}^2 = 10\,000 \text{ cm}^2$$

$$7.68 \times 10\,000 = 76\,800 \text{ cm}^2$$

$$\text{tile} = 20 \times 20 = 400 \text{ cm}^2$$

$$76\,800 \div 400 = 192$$

192 tiles

- 10 Water flows out of a pipe at a rate of 0.9 m^3 per minute.

$$1 \text{ m}^3 = 1000 \text{ litres}$$

Work out the rate of flow in litres per second.

(4 marks)

Change to litres

$$0.9 \text{ m}^3 = 0.9 \times 1000 = 900 \text{ litres per minute}$$

Change to seconds

$$900 \div 60 = 15 \text{ litres per second}$$

15 litres per second

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Room A has a floor area of 84 m^2 and is shared by 24 people.

Room B has a floor area of $540\,000 \text{ cm}^2$ and is shared by 15 people.

a. Which room gives more floor area per person? You must show your working.

b. Cal says " $540\,000 \text{ cm}^2 = 5400 \text{ m}^2$ because $100 \text{ cm} = 1 \text{ m}$ ". Explain the mistake Cal has made.

(5 marks)

a) Room A

$$84 \div 24 = 3.5 \text{ m}^2 \text{ per person}$$

Change Room B to m^2

$$540\,000 \div 10\,000 = 54 \text{ m}^2$$

Room B

$$54 \div 15 = 3.6 \text{ m}^2 \text{ per person, so Room B gives more area per person}$$

b) $1 \text{ m}^2 = 100 \text{ cm} \times 100 \text{ cm} = 10\,000 \text{ cm}^2$, so Cal should have divided by 10 000, not by 100