Mixed measurement applications

6 questions | 18 marks

Equivalent correct methods earn the corresponding marks.

1. A rectangular bed is 6 m by 4 m. Soil is added to a uniform depth of 0.2 m. Find the soil volume. [3 marks]

Base area: $6(4) = 24$ m².

Volume: $24(0.2) = 4.8$ m³.

Answer: 4.8 m³.

2. A 2 m³ tank is 60% full. Find the water volume in litres. [3 marks]

Full capacity is 2000 L.

$0.60(2000) = 1200$ L.

Answer: 1200 L.

3. A 3 m by 2 m rectangle is covered using sheets of area 0.8 m² each. Ignore overlap. Find the minimum number of whole sheets by area. [3 marks]

Area is 6 m².

$\frac{6}{0.8} = 7.5$, so at least 8 whole sheets are needed by area.

Answer: 8 sheets.

4. A circular flowerbed has radius 2 m. A gardener doubles the radius. What happens to the area? [3 marks]

Old area is 4π m².

New radius is 4 m, giving 16π m².

The ratio is $\frac{16}{4} = 4$.

Answer: It becomes four times as large.

5. A tank measures 1.2 m by 80 cm by 50 cm internally. Find its capacity in litres. [4 marks]

Convert dimensions to metres: 1.2, 0.8 and 0.5.

Volume is $1.2(0.8)(0.5) = 0.48$ m³.

Capacity is $0.48(1000) = 480$ L.

Answer: 480 L.

6. A garden is shown only by a sketch with no scale or dimensions. Can its actual area be calculated? Explain. [2 marks]

The same sketch could represent gardens of many sizes.

Measurements from an unscaled drawing do not determine actual lengths.

Answer: No. A scale or sufficient actual dimensions are needed.