FOUNDATION & HIGHER

SAME AT BOTH TIERS

Name ..... Class .....

N13: Units and measures

Reason with standard and compound units

20 marks · 25 minutes · Non-calculator

1) Show that 2.5 km is 250 000 cm

[Question 1: 1 marks]

2) Explain why 1 m^2 = 10 000 cm^2

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[Question 2: 2 marks]

3) Lucy says 3 m^3 = 300 cm^3. Explain her mistake.

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[Question 3: 2 marks]

4) Show that 90 km/h is the same as 25 m/s.

[Question 4: 2 marks]

5) Sam says 1 hour 30 minutes is 1.3 hours. Explain his mistake.

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[Question 5: 2 marks]

6) A metal has density 8 g/cm^3. Show that 2 kg of the metal has a volume of 250 cm^3.

[Question 6: 2 marks]

7) Which is faster: 72 km/h or 18 m/s? Show how you decide.

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[Question 7: 2 marks]

8) Show that 450 ml + 1.2 litres = 1650 ml

[Question 8: 1 marks]

9) A tank is 50 cm by 40 cm by 30 cm. Show that it holds 60 litres.

[Question 9: 2 marks]

10) Ama walks 4.5 km in 54 minutes. Show that her average speed is 5 km/h.

[Question 10: 2 marks]

11) The same force acts on a bigger area. Explain what happens to the pressure.

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[Question 11: 2 marks]

End of paper – 20 marks in total

Answers and brief mark scheme

Q	Answer	Method / notes
1	Shown	$2.5 \times 100\,000$ (C1).
2	Explanation	1 m = 100 cm (M1); 100×100 (C1).
3	$3\,000\,000\ cm^3$	She multiplied by 100, not 100^3 (C1); correct value (B1).
4	Shown	$90\,000 \div 3600$ (M1); 25 (C1).
5	1.5 hours	30 minutes is half an hour (C1); 1.5 (B1).
6	Shown	2000 g (M1); $2000 \div 8 = 250$ (C1).
7	72 km/h	72 km/h = 20 m/s (M1); conclusion (C1).
8	Shown	1200 ml added (C1).
9	Shown	$60\,000\ cm^3$ (M1); $\div 1000 = 60$ (C1).
10	Shown	0.9 hours (M1); $4.5 \div 0.9 = 5$ (C1).
11	It decreases	Pressure = force ÷ area (C1); larger divisor gives smaller result (C1).