FOUNDATION & HIGHER

SAME AT BOTH TIERS

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

R7: Proportion

Reason with proportion as equality of ratios

20 marks · 25 minutes · Non-calculator

1) Show that 5 : 8 = 15 : 24

[Question 1: 1 marks]

2) 6 pens cost £4.50. Show that 10 pens cost £7.50.

[Question 2: 2 marks]

3) Explain why 3 : 5 and 9 : 15 are in proportion.

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[Question 3: 2 marks]

4) Ben says that if 4 workers take 6 days, then 8 workers take 12 days. Explain his mistake.

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[Question 4: 2 marks]

5) Show that $x = 21$ when $4 : 7 = 12 : x$

[Question 5: 2 marks]

6) A recipe uses 250 g of flour for 10 biscuits. Jo has 600 g. Is this enough for 25 biscuits? Explain.

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[Question 6: 2 marks]

7) £1 = $1.25. Show that $50 = £40.

[Question 7: 2 marks]

8) Are a 4 cm by 6 cm rectangle and a 6 cm by 8 cm rectangle in proportion? Explain.

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[Question 8: 2 marks]

9) Explain why doubling one quantity doubles the other when they are in direct proportion.

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[Question 9: 2 marks]

10) 3 kg of apples cost £4.20. Show that 5 kg cost £7.

[Question 10: 2 marks]

11) For a fixed distance, are speed and time in direct proportion? Explain.

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[Question 11: 1 marks]

End of paper – 20 marks in total

Answers and brief mark scheme

Q	Answer	Method / notes
1	Shown	Multiply by 3 (C1).
2	Shown	75p each (M1); C1.
3	Explanation	Multiply both by 3 (C1); same simplest form (C1).
4	3 days	More workers take less time; inverse proportion (C1); B1.
5	Shown	Scale factor 3 (M1); C1.
6	No	Needs 625 g (M1); 600 $<$ 625 (C1).
7	Shown	50 $\div$ 1.25 (M1); C1.
8	No	4 : 6 = 2 : 3 but 6 : 8 = 3 : 4 (M1); C1.
9	Explanation	Ratio stays the same so both are multiplied by the same factor (C2).
10	Shown	£1.40 per kg (M1); C1.
11	No	Faster speed means less time (inverse) (C1).