FOUNDATION & HIGHER

SAME AT BOTH TIERS

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

R8: Ratio, fractions and linear relationships

Solve problems relating ratios to fractions and linear functions

20 marks · 25 minutes · Non-calculator

1) Sugar and flour are mixed in the ratio 2 : 7. The mix has a mass of 540 g. How much sugar is in it?

..... g

[Question 1: 2 marks]

2) y is directly proportional to x, and the graph passes through (4, 10). Find x when $y = 35$

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[Question 2: 2 marks]

3) 5 litres is about 1.1 gallons. A fuel tank holds 60 litres. About how many gallons is this?

..... gallons

[Question 3: 2 marks]

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4) Mix A has sand and cement in the ratio 3 : 1. Mix B has them in the ratio 5 : 1. 8 kg of A is combined with 12 kg of B. Find the ratio of sand to cement in the combined mix.

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[Question 4: 4 marks]

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5) £72 is shared in the ratio $\frac{1}{2} : \frac{1}{3} : \frac{1}{6}$. Find each share.

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[Question 5: 3 marks]

6) The line $y = kx$ passes through $(6, 15)$ and $(a, 25)$. Find a.

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[Question 6: 2 marks]

7) Two numbers are in the ratio 3 : 8 and add up to 99. Find the difference between them.

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[Question 7: 2 marks]

8) A cost graph is a straight line through $(0,0)$ and $(4,6)$, with mass in kg and cost in pounds. Find the cost of 7 kg and the mass that costs £24.

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[Question 8: 3 marks]

End of paper – 20 marks in total

Answers and brief mark scheme

Q	Answer	Method / notes
1	120	$\frac{2}{9} \times 540$ (P1); A1.
2	14	$y = 2.5x$ (P1); A1.
3	13.2	$60 \div 5 \times 1.1$ (P1); A1.
4	4 : 1	A: 6 kg sand, 2 kg cement (P1); B: 10 and 2 (P1); total 16 : 4 (P1); A1.
5	£36, £24, £12	Ratio 3 : 2 : 1 (P1, P1); A1.
6	10	$k = 2.5$ (P1); A1.
7	45	27 and 72 (P1); A1.
8	£10.50; 16 kg	£1.50 per kg (P1); £10.50 (A1); 16 (A1).