FOUNDATION & HIGHER

SAME AT BOTH TIERS

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

R6: Multiplicative relationships

Express a multiplicative relationship as a ratio or a fraction

20 marks · 25 minutes · Non-calculator

1) A is 3 times as big as B.

(a) Write the ratio $A : B$.

.....

(1)

(b) Write B as a fraction of A.

.....

(1)

[Question 1: 2 marks]

2) $x : y = 2 : 5$. Write an equation for y in terms of x.

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[Question 2: 2 marks]

3) Tom's age is $\frac{3}{4}$ of Kim's age. Write the ratio of Tom's age to Kim's age.

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[Question 3: 1 marks]

4) The ratio of red to blue beads is 5 : 2. How many times as many red beads as blue beads are there?

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[Question 4: 1 marks]

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5) $p = 4q$

(a) Write the ratio $p : q$.

.....

(1)

(b) Write q as a fraction of p.

.....

(1)

[Question 5: 2 marks]

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6) $a : b = 7 : 3$

(a) Write a as a fraction of $a + b$.

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(1)

(b) Write b as a fraction of a.

.....

(1)

[Question 6: 2 marks]

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7) There are twice as many dogs as cats, and three times as many cats as rabbits. Find the ratio dogs : cats : rabbits.

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[Question 7: 2 marks]

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8) The width of a rectangle is $\frac{2}{5}$ of its length.

(a) Write the ratio width : length.

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(1)

(b) Complete: length = ... × width

(1)

[Question 8: 2 marks]

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9) $3a = 4b$. Find the ratio $a : b$.

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[Question 9: 2 marks]

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10) $m : n = 3 : 8$ and $m = 12$. Find n.

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[Question 10: 2 marks]

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11) $y = 1.6x$. Write the ratio $x : y$ in its simplest form using whole numbers.

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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	(a) 3 : 1 (b) $\frac{1}{3}$	B1 each.
2	$y = \frac{5}{2}x$	$\frac{y}{x} = \frac{5}{2}$ (M1); A1.
3	3 : 4	B1.
4	2.5	B1.
5	(a) 4 : 1 (b) $\frac{1}{4}$	B1 each.
6	(a) $\frac{7}{10}$ (b) $\frac{3}{7}$	B1 each.
7	6 : 3 : 1	Cats = 3 rabbits, dogs = 6 rabbits (M1); A1.
8	(a) 2 : 5 (b) 2.5	B1 each.
9	4 : 3	$\frac{a}{b} = \frac{4}{3}$ (M1); A1.
10	32	12 ÷ 3 = 4 (M1); A1.
11	5 : 8	1 : 1.6 (M1); A1.