FOUNDATION & HIGHER

SAME AT BOTH TIERS

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

R10: Direct and inverse proportion

Solve problems with direct and inverse proportion

20 marks · 25 minutes · Non-calculator

1) y is directly proportional to x. When $x = 4$, $y = 12$. Find y when $x = 7$

.....

[Question 1: 2 marks]

2) 5 workers take 12 days to build a wall. How long would 6 workers take, working at the same rate?

..... days

[Question 2: 2 marks]

3) The cost of fuel is directly proportional to the number of litres. 40 litres cost £56. Find the cost of 25 litres.

£.....

[Question 3: 2 marks]

4) At 60 km/h a journey takes 3 hours. How long would it take at 45 km/h?

..... hours

[Question 4: 2 marks]

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5) y is inversely proportional to x. When $x = 3$, $y = 8$. Find y when $x = 6$

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[Question 5: 2 marks]

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6) y is directly proportional to x. Fill in the gaps in the table.

x	2	5	
y	7		31.5

[Question 6: 2 marks]

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7) y is directly proportional to x^2. When $x = 5$, $y = 50$. Find y when $x = 3$

.....

[Question 7: 2 marks]

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8) 8 taps fill a tank in 15 minutes. How long would 12 taps take?

..... minutes

[Question 8: 2 marks]

9) d is directly proportional to t^2. When $t = 2$, $d = 20$. Find t when $d = 125$ $(t > 0)$.

.....

[Question 9: 2 marks]

10) y is inversely proportional to $\sqrt{x}$. When $x = 4$, $y = 6$. Find y when $x = 9$

.....

[Question 10: 2 marks]

End of paper – 20 marks in total

Answers and brief mark scheme

Q	Answer	Method / notes
1	21	$y = 3x$ (M1); A1.
2	10	$5 \times 12 = 60$ worker-days (M1); A1.
3	£35	£1.40 per litre (M1); A1.
4	4	$60 \times 3 = 180$ km (M1); A1.
5	4	$xy = 24$ (M1); A1.
6	17.5 and 9	B1 each.
7	18	$y = 2x^2$ (M1); A1.
8	10	$8 \times 15 = 120$ tap-minutes (M1); A1.
9	5	$d = 5t^2$ (M1); A1.
10	4	$y = \frac{12}{\sqrt{x}}$ (M1); A1.