

1 Simplifying ratios ☐

- a) Write 24 : 36 in its simplest form.
b) Write 400 g : 2 kg in its simplest form.

$$\begin{array}{l} \text{a) } \div 12: 2: 3 \\ \text{b) } 400: 2000 \\ \hline \div 400: 1: 5 \end{array}$$

2 Sharing in a ratio ☐

- a) Share £60 in the ratio 2 : 3.
b) Share 45 kg in the ratio 1 : 2 : 6.

$$\begin{array}{l} \text{a) } 60 \div 5 = 12: \text{£}24 \text{ and } \text{£}36 \\ \text{b) } 45 \div 9 = 5: 5 \text{ kg, } 10 \text{ kg, } 30 \text{ kg} \end{array}$$

3 Ratios and fractions ☐

Red counters : blue counters = 3 : 5.

- a) What fraction are red?
b) $\frac{2}{7}$ of a class walk and the rest cycle. Write walk : cycle.

$$\begin{array}{l} \text{a) } \frac{3}{8} \\ \text{b) } 2: 5 \end{array}$$

4 Missing amounts ☐

In a car park, electric cars : petrol cars = 3 : 8.

- a) There are 24 petrol cars. How many electric cars are there?
b) Another car park has 55 cars in the same ratio. How many are electric?

$$\begin{array}{l} \text{a) } 24 \div 8 = 3, 3 \times 3 = 9 \\ \text{b) } 55 \div 11 = 5, 3 \times 5 = 15 \end{array}$$

5 Combining ratios ☐

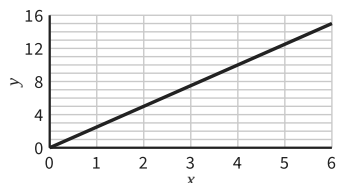
Write red : blue : green for each bag of beads.

- a) red : blue = 1 : 2 and blue : green = 2 : 5
b) red : blue = 2 : 3 and blue : green = 6 : 1

$$\begin{array}{l} \text{a) } \text{blue is 2 in both: } 1: 2: 5 \\ \text{b) } 2: 3 = 4: 6 \\ \hline 4: 6: 1 \end{array}$$

6 Ratios and linear functions ☐

- a) Use the line to find y when $x = 4$.
b) Write $x : y$ in its simplest form.



$$\text{a) } y = 10 \quad \text{b) } 2: 5$$

Ratio and proportion

revision mat answers

Higher B

7 Direct proportion ☐

- a) 4 pens cost £2.60. Work out the cost of 10 pens.
b) Which is better value: 6 rolls for £2.70 or 10 rolls for £4.20?

$$\begin{array}{l} \text{a) } 260 \div 4 = 65p, 65 \times 10 = \text{£}6.50 \\ \text{b) } 45p \text{ or } 42p \text{ a roll: } 10 \text{ rolls} \end{array}$$

8 Inverse proportion ☐

3 painters take 8 hours to paint a hall. They all work at the same rate.

- a) How long would 6 painters take?
b) How many painters are needed to paint it in 2 hours?

$$\begin{array}{l} 3 \times 8 = 24 \text{ painter hours} \\ \text{a) } 24 \div 6 = 4 \text{ hours} \\ \text{b) } 24 \div 2 = 12 \text{ painters} \end{array}$$

9 Proportion formulae ☐

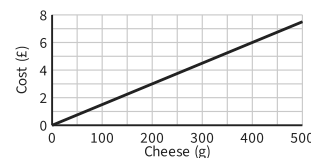
A tap fills an empty tank at a steady rate. After 3 minutes there are 12 litres in the tank.

- a) How much water is in the tank after 7 minutes?
b) Write a formula for the volume, V litres, after t minutes.

$$\begin{array}{l} \text{a) } 12 \div 3 = 4, 4 \times 7 = 28 \text{ litres} \\ \text{b) } V = 4t \end{array}$$

10 Direct proportion graphs ☐

- a) Find the cost of 200 g of cheese.
b) How does the graph show direct proportion?

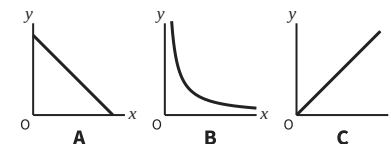


$$\begin{array}{l} \text{a) } \text{£}3.00 \\ \text{b) } \text{straight, through } (0, 0) \end{array}$$

11 Inverse proportion graphs ☐

y is inversely proportional to x .

- a) Which sketch, A, B or C, shows this?
b) When $x = 2, y = 12$. Find y when $x = 6$.



$$\begin{array}{l} \text{a) } B \\ \text{b) } 2 \times 12 = 24, y = 24 \div 6 = 4 \end{array}$$