

1 Direct proportion

A recipe for 8 flapjacks uses:

Oats	Syrup	Butter
200 g	120 g	100 g

- a) How much oats for 20 flapjacks?
b) Kim has plenty of oats and butter but only 300 g of syrup. How many flapjacks can she make?

a) $200 \div 8 \times 20 = 500 \text{ g}$

b) $300 \div 120 \times 8 = 20$

2 Direct proportion

- a) 6 m of rope costs £8.70. Work out the cost of 10 m of the same rope.
b) Bird seed comes in a 2 kg bag for £3.50 or a 5 kg bag for £8.25. Which bag is better value? Show why.

a) $8.70 \div 6 = 1.45, \times 10 = \text{£}14.50$

b) $\text{£}1.75$ or $\text{£}1.65$ a kg: the 5 kg bag

3 Inverse proportion

3 machines take 10 hours to pack an order.

- a) How long would 5 machines take to pack the order?
b) Write down one assumption you have made.

a) $30 \text{ machine hours} \div 5 = 6 \text{ hours}$

b) the machines all work at the same rate

4 Inverse proportion

A journey takes 2 hours at an average speed of 45 mph.

- a) How long does the same journey take at 60 mph?
b) The journey must take 1 hour 15 minutes. What average speed is needed?

a) $90 \text{ miles} \div 60 = 1.5 \text{ hours}$

b) $90 \div 1.25 = 72 \text{ mph}$

5 Proportion equations

y is directly proportional to x. When $x = 5$, $y = 35$.

- a) Write a formula for y in terms of x.
b) Work out the value of x when $y = 91$.

a) $35 \div 5 = 7, y = 7x$

b) $91 \div 7 = 13$

Direct and inverse proportion revision mat answers

Foundation A

6 Proportion equations

x	2	3	6	8
y	36	24	12	9

- a) Show that y is inversely proportional to x.
b) Write a formula for y in terms of x.

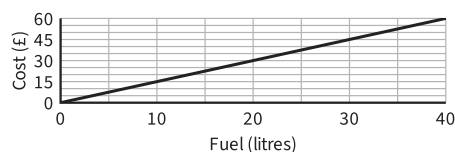
a) $x \times y = 72 \text{ every time}$

b) $y = \frac{72}{x}$

7 Direct proportion graphs

The graph shows the cost of fuel.

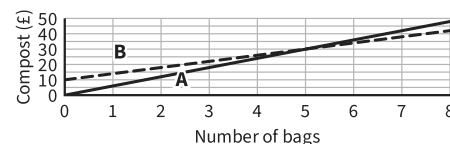
- a) Find the cost of 30 litres.
b) Work out the cost of 70 litres.



a) £45 b) $1.50 \times 70 = \text{£}105.00$

8 Direct proportion graphs

- a) Which shop's cost shows direct proportion? Why?
b) When do A and B cost the same?

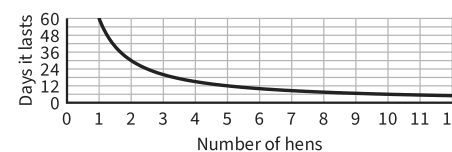


a) A: through (0, 0) b) at 5 bags

9 Inverse proportion graphs

The graph is for one sack of hen feed.

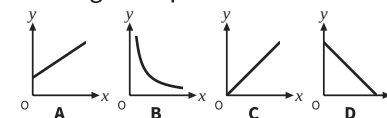
- a) How long does it last for 5 hens?
b) How many hens finish it in 4 days?



a) 12 days b) $60 \div 4 = 15 \text{ hens}$

10 Inverse proportion graphs

- a) Which sketch shows direct proportion, and which inverse?
b) Ella says D shows inverse proportion. Is she right? Explain.



a) C, B b) No: D is a line, not a curve