

Direct and Inverse Proportion

ANSWERS

Calculator | 30 minutes | Total marks: 26

Name _____ Class _____

- 1 A recipe for 6 pancakes uses 150 g of flour.

Work out how much flour is needed for 15 pancakes.

$$150 \div 6 = 25 \text{ g for one pancake (1)}$$
$$25 \times 15$$

Answer 375 (1) g [2 marks]

- 2 4 painters take 6 days to paint a school.

(a) Work out how many days it would take 3 painters to paint the school.

$$4 \times 6 = 24 \text{ days of work (1)}$$
$$24 \div 3$$

Answer 8 (1) days [2 marks]

(b) Write down one assumption you have made.

All the painters work at the same rate (1)

[1 mark]

- 3 y is directly proportional to x .

When $x = 4$, $y = 12$

(a) Work out a formula for y in terms of x .

$$y = kx, \quad 12 = 4k \text{ (1)}$$

Answer $y = 3x$ (1) [2 marks]

(b) Work out the value of y when $x = 7$

$y =$ 21 (1) [1 mark]

(c) Work out the value of x when $y = 45$

$x =$ 15 (1) [1 mark]

4

y is inversely proportional to x .

When $x = 4$, $y = 6$

(a) Work out a formula for y in terms of x .

$$y = \frac{k}{x}, \quad k = 4 \times 6 \text{ (1)}$$

Answer $y = \frac{24}{x} \text{ (1)}$

[2 marks]

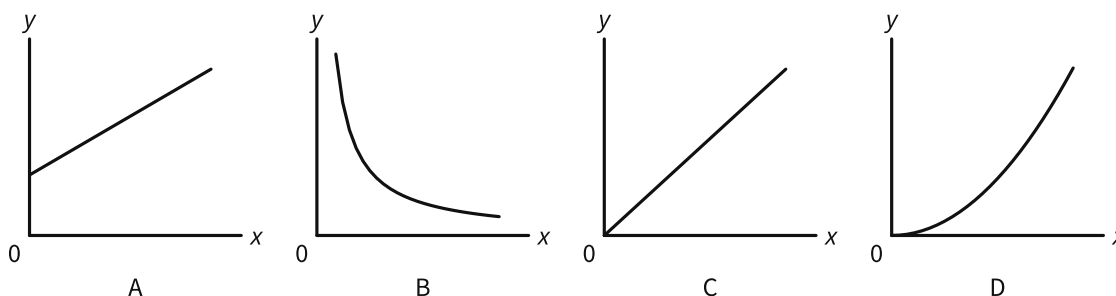
(b) Work out the value of y when $x = 8$

$y = 3 \text{ (1)}$

[1 mark]

5

Here are four sketch graphs.



(a) Which graph shows that y is directly proportional to x ?

Answer $C \text{ (1)}$

[1 mark]

(b) Which graph shows that y is inversely proportional to x ?

Answer $B \text{ (1)}$

[1 mark]

6

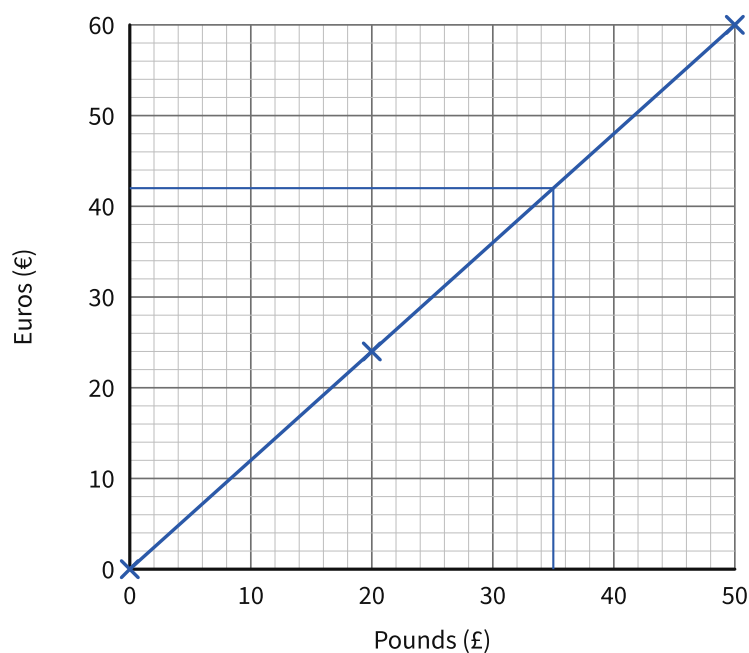
 $\text{£}1 = \text{€}1.20$

(a) Complete the table.

Pounds (£)	0	20	50
Euros (€)	0	24	60 (1)

[1 mark]

(b) Draw a conversion graph for pounds and euros.



Points plotted (1) Straight line through them (1)

[2 marks]

(c) Use your graph to change €42 into pounds.

Answer £ 35 (1)

[1 mark]

7

The table shows values of x and y .

x	2	4	5	10
y	20	10	8	4

(a) Show that y is inversely proportional to x .

$$2 \times 20 = 40 \quad 4 \times 10 = 40 \quad 5 \times 8 = 40 \quad 10 \times 4 = 40 \quad (1)$$

$x \times y$ is always the same (1)

[2 marks]

(b) Write down a formula for y in terms of x .

Answer $y = \frac{40}{x} \quad (1)$

[1 mark]

8

A journey takes 3 hours at an average speed of 60 km/h.

Work out how long the same journey takes at an average speed of 90 km/h.

$$3 \times 60 = 180 \text{ km} \quad (1)$$

$$180 \div 90$$

Answer $2 \quad (1)$

hours

[2 marks]

9

The cost, £C, of ribbon is directly proportional to its length, L metres.

5 metres of ribbon costs £3.50

Work out the cost of 12 metres of ribbon.

$$3.50 \div 5 = 0.70 \text{ (1)}$$

$$0.70 \times 12 \text{ (1)}$$

Answer £ 8.40 (1)

[3 marks]

Question	Topic	RAG
1	I can scale a recipe	
2	I can solve an inverse proportion problem and state an assumption	
3	I can write and use a formula for direct proportion	
4	I can write and use a formula for inverse proportion	
5	I can recognise graphs of direct and inverse proportion	
6	I can draw and use a conversion graph	
7	I can show that two quantities are inversely proportional	
8	I can use inverse proportion with speed and time	
9	I can solve a direct proportion problem	