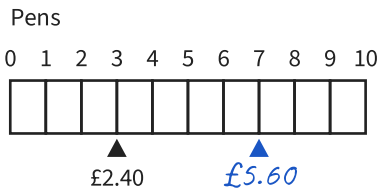


Direct Proportion

ANSWERS

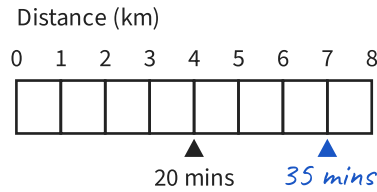


1
3 pens cost £2.40.
How much do 7 pens cost?



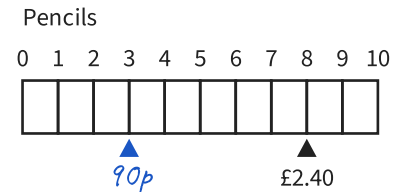
1 pen = 80p, so $7 \times 80p = \underline{\pounds 5.60}$

2
Sam runs 4 km in 20 minutes.
How long will it take him to run 7 km?



1 km = 5 mins, so
 $7 \times 5 = \underline{35 \text{ mins}}$

3
8 pencils cost £2.40.
How much do 3 pencils cost?



1 pencil = 30p, so $3 \times 30p = \underline{90p}$

4
This recipe makes 12 cookies.
150 g butter · 200 g flour · 80 g sugar · 2 eggs
Write the amounts needed to make 30 cookies.

$\times 2.5$
375 g butter, 500 g flour,
200 g sugar, 5 eggs

5
This recipe serves 4 people.
300 g rice · 500 ml stock · 180 g chicken
Ali uses 750 g of rice.
(a) How many people is he cooking for?
(b) How much chicken does he need?

$750 \div 300 = 2.5$, so $\times 2.5$
(a) 10 people
(b) $180 \times 2.5 = \underline{450 \text{ g}}$

6
Orange juice is sold in three sizes.
750 ml for £1.80 · 1.5 litres for £3.30 · 2 litres for £4.60
Which size is the best value? Show your working.

$\pounds 2.40 / \text{litre}$, $\pounds 2.20 / \text{litre}$, $\pounds 2.30 / \text{litre}$
1.5 litres is the best value

7
A printer prints 45 pages in 3 minutes.
(a) How many pages does it print in 8 minutes?
(b) How long does it take to print 300 pages?

15 pages per minute
(a) $15 \times 8 = \underline{120 \text{ pages}}$
(b) $300 \div 15 = \underline{20 \text{ minutes}}$

8
The cost of hiring a van is directly proportional to the number of days.
Hiring the van for 3 days costs £96. Complete the table.

Days	1	3	5	8
Cost (£)	32	96	160	256

£32 per day

9
Tick the tables that show **direct proportion**.
Explain how you know.

x	2	4	6
y	6	12	18

x	1	2	3
y	5	7	9

x	3	6	9
y	4.5	9	13.5

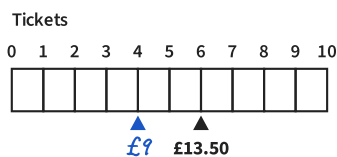
1st ✓ ($y = 3x$) and 3rd ✓ ($y = 1.5x$): $y \div x$ is constant. 2nd ✗: $y \div x$ changes (5, 3.5, 3).

10
A recipe for 6 pancakes uses 100 g flour, 1 egg and 150 ml milk.
Jess has 350 g of flour, 5 eggs and 1.2 litres of milk.
What is the greatest number of pancakes she can make? Show your working.

Flour: $350 \div 100 \times 6 = 21$ Eggs: $5 \times 6 = 30$ Milk: $1200 \div 150 \times 6 = 48$
Flour runs out first → 21 pancakes

11

6 bus tickets cost £13.50.
How much do 4 bus tickets cost?



$$1 \text{ ticket} = £13.50 \div 6 = £2.25, 4 \times £2.25 = £9$$

Answer £9

12

The exchange rate is £1 = 1.15 euros.
A jacket costs 46 euros. How much is this in pounds?

$$46 \div 1.15$$

Answer £40

13

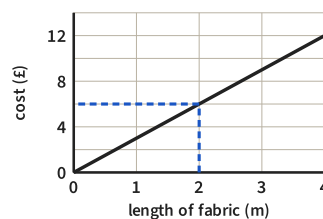
Shop A sells 5 kg of potatoes for £3.40. Shop B sells 3 kg of potatoes for £2.10. Which shop is cheaper per kilogram? Show your working.

$$A: 68p \text{ per kg}, B: 70p \text{ per kg}$$

Answer Shop A

14

The graph shows the cost of fabric.
The line is straight.
Use it to find the cost of 10 m of fabric.



$$2 \text{ m costs } £6, 10 \text{ m} = 5 \times 2 \text{ m}, 5 \times £6 = £30$$

Answer £30

15

A car travels 96 km on 8 litres of fuel.
(a) How far can it travel on 35 litres?
(b) How much fuel does it need for 300 km?

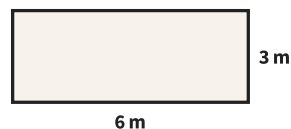
$$12 \text{ km per litre: } 35 \times 12, 300 \div 12$$

(a) 420 km

(b) 25 litres

16

2 litres of paint cover 24 m². How much paint is needed for this wall?



$$6 \times 3 = 18 \text{ m}^2, 1 \text{ litre covers } 12 \text{ m}^2, 18 \div 12$$

Answer 1.5 litres

17

A 750 g jar of honey costs £4.80. How much would 1.2 kg of the same honey cost?

$$1.2 \text{ kg} = 1200 \text{ g}, 4.80 \div 750 \times 1200$$

Answer £7.68

18

A taxi firm charges these fares. Is the fare directly proportional to the distance? Explain.

Distance (miles)	1	2	4
Fare (£)	5	7	11

$$4 \text{ miles is double } 2 \text{ miles, but } £11 \text{ is not double } £7$$

Answer No