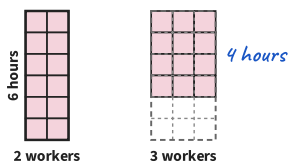


Inverse Proportion

ANSWERS 

- 1**
It takes **2 workers 6 hours** to paint a fence.
How long would it take **3 workers**?
Each block is one worker for one hour.



$$2 \text{ workers} \times 6 \text{ hours} = 12 \text{ blocks}$$

$$12 \div 3 = \underline{4 \text{ hours}}$$

- 2**
A journey takes **3 hours at 40 mph**.
How long would the same journey take at **60 mph**?

$$3 \times 40 = 120 \text{ miles}$$

$$120 \div 60 = \underline{2 \text{ hours}}$$

- 3**
6 friends share a prize equally and get **£15 each**.
How much would each get if **9 friends** shared it?

$$6 \times 15 = \underline{\pounds 90 \text{ in total}}$$

$$90 \div 9 = \underline{\pounds 10 \text{ each}}$$

- 4**
8 taps fill a paddling pool in **15 minutes**.
How long would it take with **5 taps**?

$$8 \times 15 = 120 \text{ tap-minutes}$$

$$120 \div 5 = \underline{24 \text{ minutes}}$$

- 5**
It takes **5 machines 12 hours** to finish an order.
The order must be done in **4 hours**.
How many machines are needed?

$$5 \times 12 = 60 \text{ machine-hours}$$

$$60 \div 4 = \underline{15 \text{ machines}}$$

- 6**
y is inversely proportional to x. Complete the table.

x	2	4	5	10
y	20	10	8	4

$$xy = 40$$

- 7**
y is inversely proportional to x. Complete the table.

x	3	6	9	18
y	12	6	4	2

$$xy = 36$$

- 8**
Tick the tables that show **inverse proportion**.
Explain how you know.

x	1	2	4
y	12	6	3

x	2	4	6
y	6	4	2

x	3	5	15
y	5	3	1

1st ✓ ($xy = 12$) and 3rd ✓ ($xy = 15$): $x \times y$ is always the same. 2nd ✗: y goes down by 2 each time but $x \times y$ changes (12, 16, 12).

- 9**
A farmer has enough feed for **20 cows for 30 days**.
After **10 days** he buys **5 more cows**.
How many more days will the feed last?

$$20 \times 30 = 600 \text{ cow-days. After 10 days:}$$

$$600 - 200 = 400 \text{ left.}$$

$$400 \div 25 = \underline{16 \text{ more days}}$$

Inverse Proportion further practice

ANSWERS 

- 10**
5 volunteers take **6 hours** to sort a delivery of donated books.
How long would **3 volunteers** take?

$$5 \times 6 = 30 \text{ hours of work, } 30 \div 3$$

Answer 10 hours

- 11**
y is inversely proportional to x.
Complete the table.

x	2	5	15	20
y	30	12	4	3

$$x \times y = 2 \times 30 = 60$$

- 12**
Mo reads **30 pages a day** and finishes his book in **8 days**. How many pages a day would he need to read to finish it in **6 days**?

$$30 \times 8 = 240 \text{ pages, } 240 \div 6$$

Answer 40 pages

- 13**
A journey takes **2 hours 30 minutes** at **48 mph**. How long does the same journey take at **60 mph**?

$$48 \times 2.5 = 120 \text{ miles, } 120 \div 60$$

Answer 2 hours

- 14**
A minibus costs **£180** to hire.
The cost is shared equally.
How much more does each person pay if **9 people** go instead of **12 people**?

$$180 \div 9 = \pounds 20, 180 \div 12 = \pounds 15$$

Answer £5

- 15**
3 decorators take **12 days** to paint the inside of a block of flats.
The job must be finished in **5 days**.
How many decorators are needed?

$$3 \times 12 = 36 \text{ days of work, } 36 \div 5 = 7.2, \text{ so } 8$$

Answer 8 decorators

- 16**
A campsite has enough water for **12 campers for 10 days**. After **4 days**, **3 campers** go home. How many more days will the water last?

$$12 \times 10 = 120, 12 \times 4 = 48, 120 - 48 = 72, 72 \div 9$$

Answer 8 more days

- 17**
4 people take **6 hours** to put up a marquee. Kai says **8 people** would take **12 hours** because there are twice as many people.
Is Kai right? Explain.

$$\text{twice the people, half the time, } 4 \times 6 = 24, 24 \div 8 = 3$$

Answer No, it takes 3 hours