

PROPORTION - DIRECT AND INVERSE

You have learnt that proportion shows how quantities and amounts relate to each other. When two values are said to be directly proportional when one value is a multiple of the other. Direct proportion is used to calculate the cost of something and exchange rates.

Example:

Irene buys 21 muffins for her class. She paid 42 dollars for them. How much would she pay for six extra muffins?



21 muffins cost = \$42

6 muffins cost = $\$42 \times \frac{6}{21} = \12

Now inverse proportion happens when one value increases and the other decreases. One common example is in labour, More workers doing a task would mean less time is needed to complete it.

Example:

Two men work on a farm. They can make 5 bundles of hay in 35 minutes. If one man is sick, how many bundles of hay could he make? If the farm wants to bundle the hay faster, how long would it take to make the 5 bundles of hay?

NAME _____

DATE _____



1 man will take = 5 bundles of hay $\times$ 35 = 175 minutes

6 men will take = $175 / 6 = 29.2$ minutes

Exercises

1. QUESTION

A car travels a distance of 185 km in 3 hours. What distance will the car travel in 5 hours, if it travels at the same speed?



Answer = _____

2. QUESTION

Four men dig a trench in 8 days. How long should 12 men take to do the same job, working at the same rate?



Answer = _____

NAME _____

DATE _____

3. QUESTION

Three bottles of orange juice can hold 6 litres. I wish to fill 7 similar bottles of juice. Calculate the quantity of juice I would need?



Answer = _____

1. 4. QUESTION

Joel is camp leader at his camp. He has determined that the food will feed 24 boy for a fortnight. If 8 more boys registers to join the camp, how long would the food last if the boys are given the same portion?



Answer = _____

5. QUESTION

A builder needs 15 sacks of cement. His small pick-up truck can carry 1000 pounds in one trip. The last time he bought 18 sacks of cement weighing 1692 pounds. How much would the 15 sack weigh and how many trips would the builder make?



Answer = _____

NAME _____

DATE _____

6. QUESTION

Timothy is reading a book with 358 pages. He can read 8 pages in 48 minutes. Calculate the length of time he should take to read the entire book at the same rate.



Answer = _____

7. QUESTION

Mr. Gabriel is buying 64 workbooks for his classes. If a dozen workbooks cost \$168.48, how much money would he need to buy the books?



Answer = _____

8. QUESTION

The tiles which were laid on a floor took 4 men 12 days to complete. If only 2 men were hired, how long should it have taken them if they worked at the same rate?



Answer = _____

NAME _____

DATE _____

8. QUESTION

26 children and 8 helpers are at a Summer Art and Craft Camp. Today, there are 84 muffins to share. The muffins are placed in boxes 12 muffins: 1 box. How many muffins are placed in a box?

Answer = _____

9. QUESTION

A bread recipe has the ratio of flour and sugar as $3:\frac{1}{4}$ cups. How much sugar is required if 12 cups of flour is used?

Answer = _____

9. QUESTION

The cost of oranges is shown below.

Shop A: \$15 for 20 oranges

Shop B: \$20 for 25 oranges

Which shop has the oranges cheaper?

Answer = _____