

Inverse Proportion

Examples

3 workers build a wall in 12 hours. How long would it have taken for 6 equally productive workers?

In this example, the number of workers and the time are inversely proportional, because when the quantity of people decreases, the total time increases and when the quantity of people increases, the total time decreases.

Follow these steps to complete an inverse proportionality word problem:

Write down the ratio using one type of term (number of workers or time).

Write down the ratio with the second type of term (number of workers or time).

<i>Workers</i>	<i>Hours</i>
3	12
6	x

Invert one of the ratios (flip it upside down).

Cross-multiply, divide and solve (the same method used for **direct proportions**).

$$\frac{6}{3} = \frac{12}{x} \qquad x = \frac{12 \cdot 3}{6} = 6 \text{ h}$$

It takes 14 hours for a faucet with a flow of 18 liters per minute to fill a reservoir with water. How long will it take if its flow is reduced to 7 liters per minute?

In this example, the flow and time are inversely proportional, because when the flow decreases, the total time increases and when the flow increases, the total time decreases.

<i>l / min</i>	<i>hours</i>
18	14
7	x

$$\frac{7}{18} = \frac{14}{x} \quad x = \frac{18 \cdot 14}{7} = 36 \text{ h}$$