

Let x gardeners be needed to fill the garden in 15 minutes.

Number of gardeners	3	x
Time (in minutes)	90	15

3 gardeners on the job means less time required to complete the job.

Since, it is a case of inverse proportion.

$$3 \times 90 = x \times 15$$

$$3 \times 90 = 15x$$

$$x = \frac{3 \times 90}{15} = 18 \text{ gardeners.}$$

3 gardeners are already working, so $18 - 3 = 15$ more gardeners need to be put on the job.

Problem 10 : 25 pumps can fill a reservoir in 12 hours. In how many hours can 15 such pumps fill the reservoir?

Solution : Let the required number of hours be x hours.

Number of pumps (x)	25	15
Number of hours (y)	12	x

Number of pumps decreases so number of hours would be increased. So, it is an inverse proportion.

$$\therefore 25 \times 12 = 15 \times x \Rightarrow x = \frac{25 \times 12}{15} = 20$$

Hence, required number of hours is 20.

EXERCISE 15.2

1. Check, whether the following quantities are in indirect proportion or not :

(a)

a	4	8	16	32	64
b	16	8	4	2	1

(b)

a	5	10	14	20	3
b	7	21	20	35	14

2. If x and y are inversely proportional, then find the missing values :

(a)

x	8	10	b	c
y	25	a	50	40

(b)

a	60	72	b	180	d
b	360	a	150	c	90

- 15 men can repair a road in 24 days, how long will 9 men take to repair the same road?
- If 16 horses, consume a certain quantity of corn in 25 days, in how many days would the same quantity be consumed by 40 horses?
- A factory requires 28 machines to make some shirts in 20 days. If 4 machines are not working properly, then in how many days the remaining machines can make the same number of shirts?
- 12 pumps can fill a reservoir in 15 hours. In how many hours will 10 pumps take to fill the same reservoir?
- A farmer has enough fodder to feed 28 animals for 5 days. How long would the food last if there are 7 more animals?
- A train takes 10 hours to reach a destination if it travels at a speed of 65 km/h. What should be its speed to reach the destination in 13 hours?