**A completes a work in 12 days and B completes the same work in 30 days. In how many days, will they complete their work?**

A. 10 days
B. 8 days
C. 40/7 days
D. 60/7 days
E. None of the above

Ans: D

Efficiency concept:

If a person maintains 100 – Records. Out of which 3 records had errors then

The person's efficiency Errors Made/ Total Records ==3/100 =3/100 = -03

This is also part of Ratio Proportaion and variation.

**Detailed Solution**

**Given:**

Time taken by A to complete the work = 12 days

Time taken by B to complete the work = 30 days

**Concept Used:**

Efficiency(work per unit time) = Total work/Total Time

**Calculation:**

Let the total units of work be 60 (LCM of 12 and 30)


Combined efficiency = (5 + 2) = 7 Work per day

Together they will complete the work in 60/(5 + 2) = 60/7 days

**∴ Time taken by A and B is 60/7 days.**

## Question

A certain number of men complete a piece of work in 60 days. If there were 8 men more, the work could be finished in 10 days less. How many men were originally there?

Ans:

Let there be x men originally.
x men finish the work in 60 days and (x+8) finish it in 50 days.
x men finish the job in 60 days.
1 man can finish it in 60x days.
(x+8) men can finish the job in 50 days.
1 man can finish it in 50(x+8) days.

Therefore,

$60x=50(x+8)$

$10x=400$

$x=40$

Hence, there were 40 men originally.

**Question**

40 men can finish a piece of work in 26 days.How many men will be needed to finish it in 16 days?

**Q1** 36 men can do a piece of work in 7 days. How many men will do the same work in 42 days?

## Solution

Verified by Toppr

Men : Days :: Men : Days

36 : 7 : x : 42

$\therefore$ By inverse proportional

$$36 \times 7 = x \times 42 \Rightarrow 42 \Rightarrow x = \frac{36 \times 7}{42} = 6 \text{ men}$$

Was this answer helpful? 12 2

## Question

Six men working 10 hours a day can do a piece of work in 24 days. In how many will 9 men working for 8 hours a day do the same work?

Medium

## Solution

Verified by Topp

Method 1: The problem involves 3 sets of variables, namely - Number of men, Working hours per day and Number of days.

## Solution

Verified by Toppr

Method 1: The problem involves 3 sets of variables, namely - Number of men, Working hours per day and Number of days.

| Number of Men | Number of hours per day | Number of days |
|---|---|---|
| 6 | 10 | 24 |
| 9 | 8 | x |

Step 1: Consider the number of men and the number of days. As the number of men increases from 6 to 9, the number of days decreases. So it is in Inverse Variation.

Therefore the proportion is 9 : 6 :: 24 : x .....(1)

Step 2: Consider the number of hours worked per day and the number of days. As the number of hours working per day decreases from 10 to 8, the number of days increases. So it is inverse variation.

Therefore the proportion is 8 : 10 :: 24 : x .....(2)

Combining (1) and (2), we can write as

$$\begin{matrix} 9 : 6 \\ 8 : 10 \end{matrix} :: 24 : x$$

We know, Product of extremes = Product of Means.

Extremes Means Extremes

9 : 6 :: 24 : x

8 : 10

So, $9 \times 8 \times x = 6 \times 10 \times 24$

$$x = \frac{6 \times 10 \times 24}{9 \times 8} = 20 \text{ days}$$

Method 2: (Using arrow marks)

| Number of Men | Number of hours per day | Number of days |
|---|---|---|
| 6 | 10 | 24 |
| 9 | 8 | x |

Step 1: Consider men and days. As the number of men increases from 6 to 9, the number of days decreases. It is in inverse variation.

The multiplying factor $= \frac{6}{9}$

Step 2: Consider the number of hours per day and the number of days. As the number of hours per day decreases from 10 to 8, the number of days increases. It is also in inverse variation.

The multiplying factor $= \frac{10}{8}$

$\therefore x = \frac{6}{9} \times \frac{10}{8} \times 24 = 20$ days.

**Question:**

**40 men can finish a piece of work in 26 days.How many men will be needed to finish it in 16 days?**

**Q1.** A certain number of men complete a piece of work in 60 days. With 8 more men that work will be completed 10 days earlier. How many men were there in the beginning?

**Q2.** A, B and C together complete a piece of work in 18 days. A alone completes the work in 36 days and B in 60 days. How many days will C take to complete the task alone?

**Q3.** Hina started peeling 44 potatoes at the rate of 3 potatoes every minute. After four minutes, Chitra also started working with her and she started peeling potatoes at the rate of 5 potatoes every minute. When they are done, how many potatoes will Chitra have peeled?

**Q4.** Rajesh types 75 pages in 14 hours. So how many pages can he type in 20 hours?

**Q5.** Pipe A fills the tank in 4 hours while pipe B empties it in 6 hours. If both the pipes are opened together, it will take ____ time to fill the tank

**Q6.** A completes a work in 12 days and B in 16 days. Both of them took the job for Rs 6,000. With the help of C, they were able to complete the work in 6 days. So what is the share of B in the income?

**Q7.** A and B can complete a piece of work in 30 days, B and C can complete the same piece of work in 24 days, and C and A in 20 days. They all worked together for 10 days, then B and C left work. How many more days will A take to complete the remaining work?

**Q8.** Sohan is a three times better carpenter than Rohan. Sohan takes 60 days less than Rohan to make a sofa. If they work together, how many days will it take them to make the sofa?

**Q9.** A, B and C can complete a piece of work in 729,486 and 1458 days respectively. Working together, they will complete the same work in how many days?

**Q10.** A can do a piece of work in 94 days, B can do in 141 days and C can do same work in 188 days. If on the first day A worked alone and on the second day B and C worked together and on the third day A and C worked together. If they repeat the cycle, then in how many days total work can be