

TIME & WORK: SOLVED PROBLEMS : PART 1

1.



pratik mane

solve this-if A B & C completes the work in 12 days, A works double than B, C works 1/3 of B & C. Then how many days required individually to complete the work to C.....?

Reply · 👍 👎

Alright, so your initial equation is:

$$(1/A) + (1/B) + (1/C) = 1/12 \quad \dots(1)$$

This is your daily work equation. Since they complete it in 12 days, every day they finish $1/12^{\text{th}}$ of the work.

Now A works twice as hard as B and C works $1/3^{\text{rd}}$ of B & C. So the equations will be:

$$1/A = 2(1/B) \quad \dots(2)$$

$$1/C = (1/3) \{ (1/B) + (1/C) \} \quad \dots(3)$$

On Solving Equation (3), you will get

$$1/C = (1/2)(1/B) \quad \dots(4)$$

Now plug this value from Equation (4) in Equation (1), we get

$$(2/B) + (1/B) + (1/2)(1/B) = 1/12$$

On solving this, you get:

$$(1/B) = 1/42$$

Plugging this value of B in Equation (4), you

$$1/C = 1/84.$$

Hence by Flip Rule, this implies that C would take 84 days to complete the work ! ☺

2.



Raunak Jha

my question is if 12 man can do a piece of work in 36 days same piece of 18 women do it in 60 days and 8men and 20 women complete the same piece of work in 20 days if only women need to complete the entire work in 4 days how many women requires for the task

Reply · 👍 👎

So, the info you need to first write down is the amount of time that the group of Men and women take separately.

12 men X 36 days = 432 Man Days

18 women X 60 days = 1080 Women Days

So basically, 432 Man Days is equivalent to 1080 Women Days. Or you can say that 1 man = 2.5 women.

That's part 1. Now for the 2nd part, calculate the work done in the first 20 days.

So 8 Men and 20 women are working. Now converting the men to women, we can say that

(8 X 2.5) Women and 20 women are working = 20 women and 20 women = 40 women.

So, 40 women are working for the 1st 20 days. It means they complete:

40 women X 20 days = 800 women days of work.

Now since we're talking in terms of Women Days, the remaining work is $1080 - 800 = 280$ women days.

The question asks us how many days are required, if 4 women are employed.

So since there are 280 women days of work left, the days required would be :

280 women days / 4 women = 70 days.

Hence the answer is 70 days! ☺

3.



Smit Patel

A can do a piece of work in 10 days, B in 12 days and C in 15 days. They all start work together, but A leaves the work after 2 days and B leaves 3 days before the work is completed. How many days did the work last??

Reply · 👍 👎

Now firstly if all 3 of them work, their daily work equation would be:

$$(1/A) + (1/B) + (1/C) = (1/10) + (1/12) + (1/15)$$

So let's calculate how much work they complete in the first two days.

Since all three of them work for the 1st two days, we can equate it like:

$$2 \times \left\{ (1/10) + (1/12) + (1/15) \right\} = 2 \times (1/4) = 1/2$$

So, now in the last three days only C works. So the work completed by C in the last three days is:

$$3 \times (1/15) = 1/5$$

So now, in the time period between the first 2 days and the last three days, we know that B and C were working together. Now let's calculate the work that was supposed to be finished in that time period.

$$\text{Remaining work} = 1 - (1^{\text{st}} \text{ two days}) - (\text{last 3 days})$$

$$= 1 - (1/2) - (1/5) = 3/10$$

Now let's calculate how much B and C complete daily. So using the daily work equation,

$$(1/B) + (1/C) = (1/12) + (1/15) = 3/20.$$

So the number of days, B and C working together would take to complete that remaining work, would be:

$$(3/10) / (3/20) = 2 \text{ days.}$$

So the total days taking by the group is: $2 + 2 + 3 = 7$ days! 😊

4.



Sushma Thakur · 1 year ago

can u please solve this question for me

4 men and 6 women working together can complete the work within 10 days. 3 men and 7 women working together will complete the same work within 8 days. In how many days 10 women will complete this work ?

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Now for this problem, let's assume X is the work done daily by a single man &

Y is the work done daily by a single woman.

So, from the problem, we can write the daily work equations like:

$$4x + 6y = (1/10) \quad \dots(1)$$

$$3x + 7y = (1/8) \quad \dots(2)$$

You can multiply the first equation by 3 and 2nd one by 4 and subtract both of them to simplify.

On solving, you get

$$y = 1/50$$

Which means that if only 1 women were to do the job, everyday she'd finish 1/50th of the work.

Which means she'd complete the task in 50 days.

But in the problem, they've said what if you had 10 women. Which equates to a daily work by the group of $10(y) = 10(1/50) = 1/5$.

Which implies that 1/5th of the work is done every day and

Hence, the work is completed in 5 days! 😊

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5.



Sindhuja Murugesan

A and B can do a piece of work in 72 days; B and C can do it in 120 days; a and C can do it in 90 days. In what can a alone do it ?plz solve this sir

Reply ·

Alright now, if you don't know how to approach this sum, first go and watch Time and Work: Part 1.

So, the daily work equations for this problem will be as such:

$$(1/A) + (1/B) = 1/72 \quad \dots(1)$$

$$(1/B) + (1/C) = 1/120 \quad \dots(2)$$

$$(1/A) + (1/C) = 1/90 \quad \dots(3)$$

Now, to solve these, you can do (1) minus (2) plus (3). This eliminates B and C. So that comes as:

$$(1/A) + (1/B) - (1/B) - (1/C) + (1/A) + (1/C) = 1/72 - 1/120 + 1/90$$

$$2(1/A) = 1/60$$

$$1/A = 1/120$$

So daily, A would finish $1/120^{\text{th}}$ of the work, which implies that A would take 120 days! 😊

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