

* ——— Work. & time ——— *

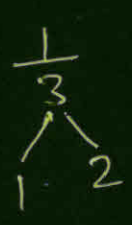
$$M_1 \times D_1 \times H_1 = W_1$$

$$M_2 \times D_2 \times H_2 = W_2$$

m → men
d. → day
H → hour
W → work

$$\Rightarrow \boxed{\frac{M_1 \times D_1 \times H_1}{W_1} = \frac{M_2 \times D_2 \times H_2}{W_2}}$$

Q1- A contractor under took in 28 day. And he employed 20 men for that, who works 8 hours. Per day. after 18 day only 1/3 work was completed, how many more men should be employed to finish the work on time. If know the starts working 9 hour per day.



$$\frac{M_1 \times D_1 \times H_1}{W_1} = \frac{M_2 \times D_2 \times H_2}{W_2}$$
$$\frac{20 \times 18 \times 8}{1} = \frac{M_2 \times 10 \times 9}{2}$$

Q1- A man undertook to finish 12 km in 350 day. they employed 45 men & after 200 day only 4.5 km is completed. then how many more men should be employed. So that work will be completed on time.

12 km
 ↓ ↘
 4.5 7.5

$$\frac{10}{45 \times 200} = \frac{M_2 \times 150}{7.5}$$

$$M_2 = 100 \quad \text{Ans}$$

Q1- 20 men working 8hr daily and do in 30 days & in how many days 15 men can do 50% work working 4hr daily. If the work of 2 men for 1st group is equal for 3 men in 2nd group.

$$G_1 = G_2$$

$$G_1 \times 2 = G_2 \times 3$$

$$\frac{G_1}{G_2} = \frac{3}{2}$$

$$25 \times 3 = 2D$$

$$D = \frac{75}{2} = 37\frac{1}{2} \quad \text{Ans}$$

Q₁ - 38 men can complete a work by working 6 hr daily in 12 days. Then calculate in how many day 57 men by working 8 hr daily can do double the work. If the work of two men for 1st Group in 1 hr. is equals to the work to 3 men from 2nd group in 1.5 hr.

$$\frac{3 \times 19 \times 3 \times 3}{9 \times 38 \times 6 \times 12} = \frac{2 \times 19 \times 2}{4 \times 57 \times 8 \times D}$$

$$G_1 \times 2 \times 1 = G_2 \times 3 \times \frac{3}{2}$$

$$G_1 \times 4 = G_2 \times 9$$

$$\boxed{D = 27} \text{ Ans}$$

$$\frac{G_1}{G_2} = \frac{9}{4}$$

Q₂ - there is an arrangement of food for 200 Soldiers for 40 days. after 10 days 50 more Soldiers comes into the camp. the calculate in how many day the remaining food for last.

200 Soldier
+ 50 soldier new
250 → soldier

$$200 \times 50 = 10000$$

$$200 \times 10 = 2000$$

$$\hline 8000$$

$$\frac{8000}{250} = 32 \text{ day Ans}$$

Trick
↓
OR

$$200 \times 40 = 250 \times D$$

$$8000 = 250 \times D$$

$$\frac{8000}{250} = 32 \text{ Ans}$$

Q1: there is food arrangement for 1600 soldiers for 80 days. and each soldier takes 900 gm food after 30 days 400 soldier left the camp and know each soldier start taking 1000 gm. food. find for how many days for remaining for remaining for last.

$$\begin{array}{r} 1600 \\ - 400 \\ \hline 1200 \end{array}$$

$$1600 \times 80 \times 900 = 1200 \times 1000 \times D$$

$$60 = D$$

$$\boxed{D = 60} \text{ Ans}$$

Q2: 50 men can complete a piece of work in 40 days. if after every ten days five men left the work. then how many days the whole work will be finish?

$$50 \times 40 = 2000$$

$$50 \times 10 = 500$$

$$50 \times 10 = 450$$

$$50 \times 10 = 400$$

$$50 \times 10 = 350$$

$$50 \times 10 = 300$$

$$\text{Ans } \frac{50}{\text{day}} \quad \underline{\underline{2000}}$$

Q1- 60 men can complete a piece of work in 50 days. If after every 10 days 5 men left the work then in how many days will the work be finished.

$$60 \times 50 = 3000$$

$$60 \times 10 = 600$$

$$55 \times 10 = 550$$

$$50 \times 10 = 500$$

$$45 \times 10 = 450$$

$$40 \times 10 = 400$$

$$35 \times 10 = 350 = 2850$$

$$30 \times 5 = 150$$

65 day

Ans

Q2- 4 men can do a piece of work in 6 days while 3 women can do that work in 16 days then in what time one man & 2 women can do that work together

$$\begin{array}{l} 1 \times M = 2 \times W \\ M = 2 \\ W = 1 \end{array}$$

$$4M \times 6 = 3W \times 16$$

$$4(2) \times 6 = 3(1) \times 16$$

$$48 = 48$$

$$\frac{M}{W} = \frac{2}{1}$$

$$1m + 2w \rightarrow \text{together}$$

$$1 \times 2 + 2 \times 1$$

4

$$\frac{48}{4} = \textcircled{12} \text{ day}$$

Q1-

3 men can do a piece of work in 16 days and 6 women can do work in 16 days. then 12 men and 8 women can do piece of work how many day?

$$3 \times 2 + 16 = 96$$

$$3M \times 16 = 6W \times 16$$

$$1M = 2W$$

$$12M + 8W$$

$$24 + 8 = 32$$

$$\frac{96}{32} = \textcircled{3} \text{ day } \underline{\text{Ans}}$$

Q1- 2 men can do piece of work in 3 day. 3 women in 4 day & 4 children in 6 days then find in how many days one man, one woman, 2 children can do this whole work?

Ans $1m : 2w : 4c$
 $6 : 12 : 24$

$2m \times 3 = 3w \times 4 = 4c \times 6$

The value
 ← Put any
 Term to
 get 24.

$1m = \frac{2w}{4} = \frac{4c}{4}$

$4c \times 6$
 $4(1) \times 6 = 24$

$1m + 1w + 2c$
 $\downarrow \quad \downarrow \quad \downarrow$
 $\frac{1}{4} \quad \frac{1}{2} \quad 2 \times 1 = 8$
 $\frac{24}{8} = 3$ Ans

Q1

$12m + 18w = 10$
 $9m + 18w = 12$
 $2m + 3w = ?$

Ans

$(12m + 18w) 10 = (9m + 18w) 12$

$120m + 180w = 108m + 216w$

$12m = 36w$

$\frac{m}{w} = \frac{3}{1}$

$(36 + 18) 10 = 540$

$\frac{540}{9} = 60$ Ans

$2m + 3w$
 $6 + 3 = 9$

Q1.

$$6m + 8w = 10$$

$$26m + 48w = 2$$

$$15m + 20w = ?$$

$$2.5(6m + 8w) = \frac{10}{2.5}$$

$$26m + 48w = 2$$

$$15m + 20w = \textcircled{4} \text{ Ans}$$

or

$$(6m + 8w) \cdot 10 = (26m + 48) \cdot 2$$

$$(60m + 80w) = (52m + 96w)$$

$$8m = 16w$$

$$m = 2w$$

$$\frac{m}{w} = \frac{2}{1}$$

$$15m + 20w$$

$$15 \times 2 + 20 \times 1 = \textcircled{50}$$

$$\begin{aligned} 60m + 80w \\ 60 \times 2 + 80 = 200 \end{aligned}$$

$$\frac{200}{50} = \textcircled{4} \text{ days}$$

Ans

Q:- 2 worker A, B can do a work in 5 days but if A starts working with twice of its efficiency, but B starts with $\frac{1}{3}$ of his efficiency then the work finished in 3 days only. find in how many day A man days alone can do the work.

Ans!

$$(A+B)5 = \left(2A + \frac{B}{3}\right)3$$

$$5A + 5B = 6A + B$$

$$-A = -4B$$

$$\frac{A}{B} = \frac{4}{1} \rightarrow 5 \times 5 = \frac{25}{1} = \left(6\frac{1}{4}\right) \text{ Ans}$$

Q:- A work was suppose to be done in 40 days 100 men were employed & after 35 days 40 more men were employed & then the work finish in 40 days. for how many days work would have been delay. if those 40 men were not employed.

$$35 \times 100 = 3500$$

$$5 \times 140 = \frac{700}{4200}$$

$$\frac{4200}{100} = 42$$

$$\uparrow \left(2 \text{ days}\right) \text{ Ans}$$

$$40$$

Q1 6 men & 10 women can reap $\frac{5}{10}$ part of 360 hectre field in 15 day by working 6 hr daily. If know 2 more men were employed & 4 women are removed then calculate how many more days would it take to finish the remaining work by working 7 hr daily. If the work of 2 men is equals to the work of three women.

$$\frac{(6m + 10w) \times 15 \times 6}{5} = \frac{(8m + 6w) \times 7 \times D}{7}$$

$$19 \times 38 \times 7 \times 6 = \frac{36}{6} \times D$$

$$2m = 3w$$

$$\frac{m}{w} = \frac{3}{2}$$

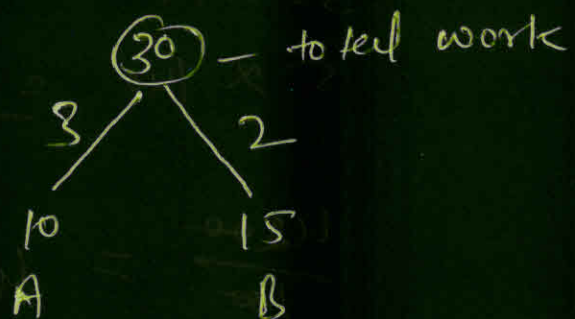
$$D = 19 \text{ Ans}$$

Q2 A & B starts working together but after some day A left the work and the work finish in total 9 days. Then calculate after how many days A left the work if A & B alone can do the whole work in 10 & 15 day respectively.

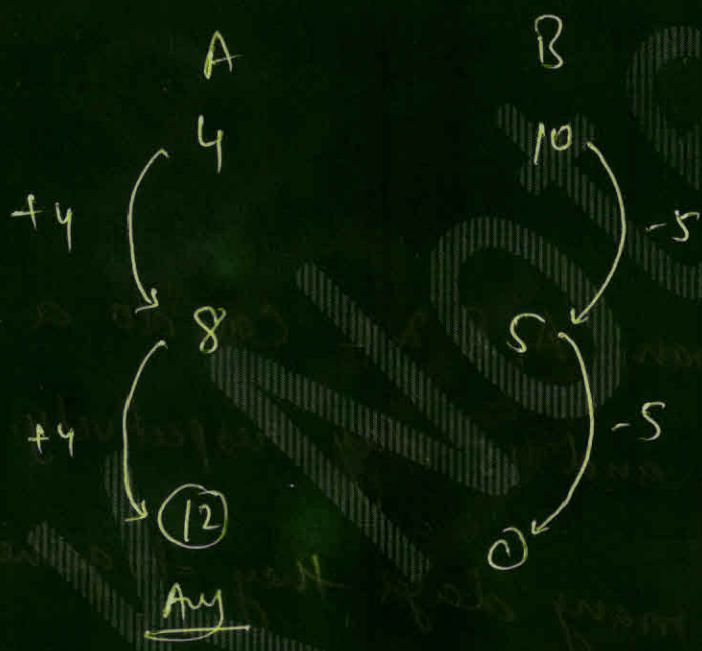
$$(A+B) = 9$$

$$9 \times 2 = 18$$

$$30 - 18 = \frac{12}{3} = 4 \text{ Ans}$$



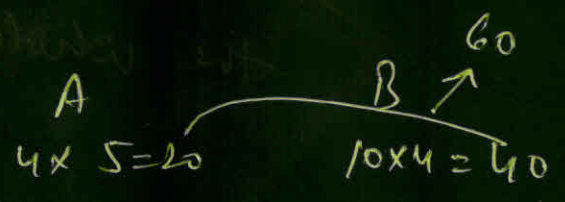
Q1: If A works for 4 day on a Job then B completed the the remaining work in 10 days but if A work for 8 days then B finish the remaining work in 5 day. only. then A alone can do work in how many days.



OR

$$A \times 4 = B \times 5$$

$$\frac{A}{B} = \frac{5}{4}$$



$$\frac{60}{5} = 12 \text{ days}$$

Q2- A can do a work in $8\frac{1}{3}$ is more than (A+B) together & B can do some work in $5\frac{1}{3}$ days more than A+B together in how many days A+B together can do this works.

Method :-

after :- Not used to further work
 ↓
 subtract / Efficiency.
 Not include.

before :- Add / Efficiency
 include.
 used to further work.

Q) A, B, C starts working together A left the work after 2 days & C left the work after next 2 day. then in how many days the whole work will be finish.

$$A = 2 \times 6 = 12$$

$$C = 4 \times 4 = 16$$

$$28$$



$$60 - 28 = \frac{32}{5} = 6\frac{2}{5} \text{ Ans}$$

- ③ A, B, C starts working together C left the work after 3 day. & B left the work 4 day before completion of the work. find how many days the whole work will finish.

$$C = 3 \times 4 = 12$$

$$B = 4 \times 5 = \frac{+20}{8}$$

$$\begin{array}{r} 60 \\ 6 \overline{) 5} \quad \diagup 4 \\ 10 \quad 12 \quad 15 \end{array}$$

$$60 + 8 = \frac{68}{11} = \left(6 \frac{2}{11}\right) \text{ Ans}$$

- ④ A, B, C starts working together A left the work 2 days before & B left the work 3 day before the completion of work. So in how many day the whole work will be finish.

$$A = 2 \times 6 = 12$$

$$B = 5 \times 3 = \frac{15}{27}$$

$$\begin{array}{r} 60 \\ 6 \overline{) 5} \quad \diagup 4 \\ 10 \quad 12 \quad 15 \end{array}$$

$$60 + 27 = \frac{87}{15} = \left(5 \frac{4}{5}\right) \text{ Ans}$$

Q3 If A, B, C are working alternatively 1 day each then in how many days the whole work will finish.

$$\begin{array}{r}
 \text{day} \quad 1 \quad + \quad 1 \quad + \quad 1 \\
 \hline
 6 \quad + \quad 5 \quad + \quad 4 = 15 \\
 \hline
 \text{day } 3
 \end{array}$$



$$\frac{60}{15} = 4 \times 3 = \text{12 Ans}$$

Q4 If A is working daily & assisted by B and C on alternate days then in how many days the whole work will be finish.

$$\begin{array}{r}
 A+B = 6+5 = 11 \\
 A+C = 6+4 = 10
 \end{array}
 \left. \begin{array}{l} \\ \\ \end{array} \right\} -2 = 21$$

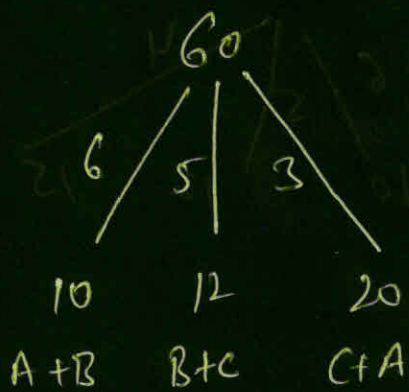
$$\begin{array}{r}
 2 - 21 \\
 2 - 21
 \end{array}$$

$$1 - 11$$

$$\frac{7}{10} \rightarrow 7$$

$$\text{5} \frac{7}{10} \text{ Ans}$$

Q:- A+B, B+C, & C+A can do a work in 10, 12, & 20 days then in how many days C alone can do it.



$$A+B + B+C + C+A = 6+6+3$$

$$2(A+B+C) = 14$$

$$A+B+C = 7$$

$$A+B+C = 7$$

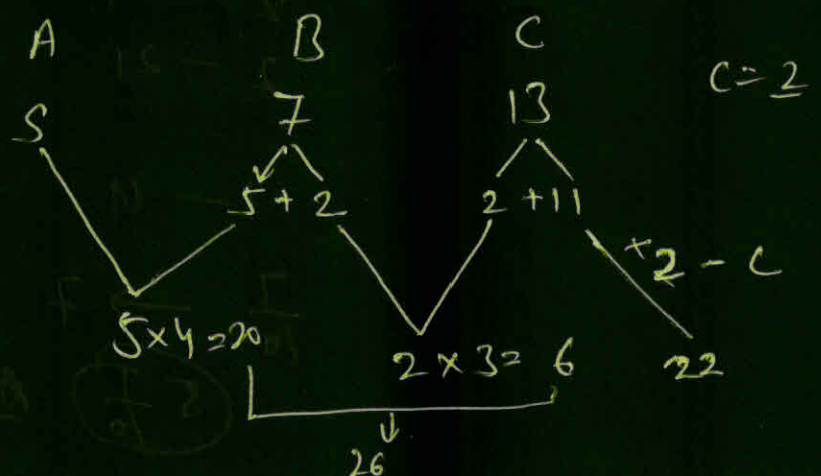
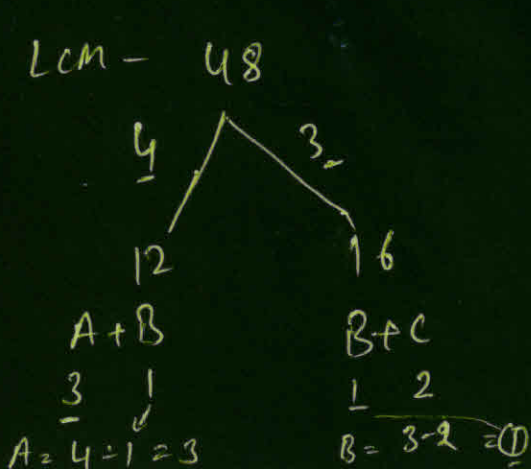
$$6 + C = 7$$

$$C = 7 - 6$$

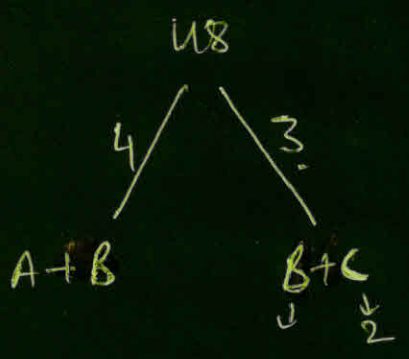
$$C = 1$$

$$\frac{60}{1} = \text{60 Days}$$

Q:- A+B and B+C can do a work in 12 & 16 days respectively. If A, B, C work for 5, 7, 13 days respectively, then the work finished. In how many days A alone can do whole work together.



$48 - 26 = 22$



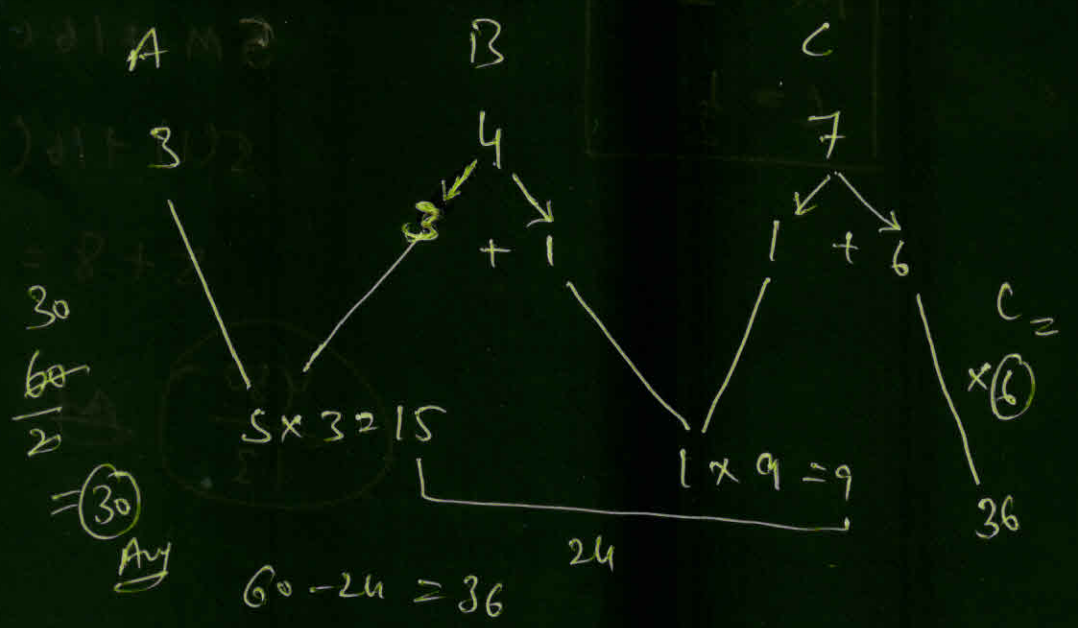
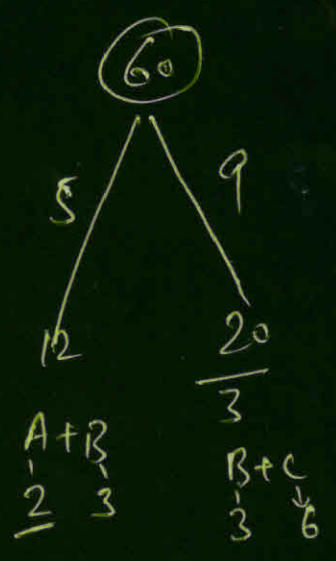
$\frac{48}{3} = 16$ Ans

$B = 3 - 2 = 1$
 $B = 1$

$A = 4 - B$
 $A = 4 - 1 = 3$

- A = 3
- B = 1
- C = 2

Q1:- A+B & B+C can do a work in 12 and $6\frac{2}{3}$ day. A, B & C work for 3, 4, 7 day respectively & the work finished then in how many days A alone can do the whole work.



$$\underline{01.} \quad 1m + 4c + 3w = 96 \text{ hrs.}$$

$$2m + 3w = 120 \text{ hr}$$

$$2m + 8c = 80 \text{ hr}$$

$$5m + 16c = ?$$

Ans.

$$\frac{2m + 8c}{2} = 80 \text{ hr} \times 2$$

$$\therefore \frac{A}{2} = n \times 2$$

$$1m + 4c = 160 \text{ hr}$$

$$1m + 4c = 3$$

480 - LCM

5

4

3

$$\frac{1m + 4c}{3} + \frac{3w}{2}$$

$$\frac{2m + 3w}{2} + ?$$

$$\frac{1m + 4c}{1} + \frac{?}{2}$$

$$m \rightarrow 1$$
$$c = \frac{1}{2}$$

$$5m + 16c = ?$$

$$5(1) + 16\left(\frac{1}{2}\right)$$

$$5 + 8 = \underline{13}$$

$$\frac{480}{13} \quad \underline{Ans}$$

Q:- In equal time A can do half the work as compare to the work done by B. & In that equal time 'C' can do half the work done by A & B together if 'C' alone can do it in 40 day. then in how many days they all together can do the whole work.

$$\frac{A+C}{B} = \frac{2 \times 4 = 8}{1 \times 4 = 4} + \frac{3 \times 4 = 12}{1 \times 4 = 4}$$

$$= 12 \times 30 = \frac{360}{5} = 72$$

$$\frac{A+B}{C} = \frac{3 \times 3 = 9}{1 \times 3 = 3} + \frac{4 \times 3 = 12}{1 \times 3 = 3}$$

B=4
C=3
A=5

Q:- A takes 3 times to do a work as compare to B & C together while B takes 4 time to do that work as compare to A & C together. If all three working together can do that work in 24 Days then A alone can do it in how many days.

Ans:-

$$\frac{A}{B+C} = \frac{1}{3} \begin{array}{l} \times 5 = 5 \\ \hline + \\ \hline 4 \times 5 = 20 \end{array}$$

$$20 \times 20 = \frac{400}{5} = \textcircled{90} \text{ Ans}$$

$$\frac{B}{A+C} = \frac{1}{4} \begin{array}{l} \times 4 = 4 \\ \hline + \\ \hline 5 \times 4 = 20 \end{array}$$

Q:- A can do $\frac{3}{4}$ of work done by B in $\frac{5}{6}$ of the time taken by B. So find in how many days A alone can do it. if together they can do it in 10 days.

Ans:-

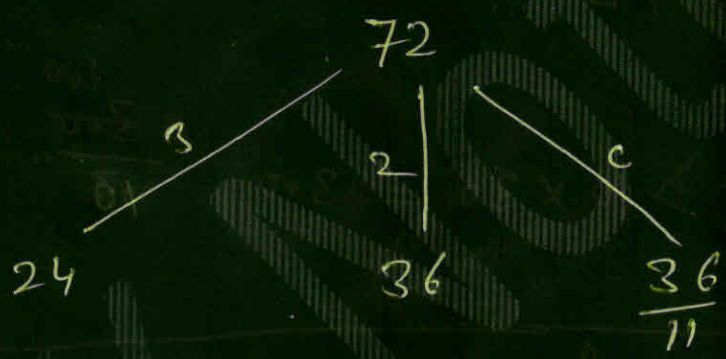
	work
A	$\frac{3}{4}$
B	4

Time	
$\frac{5}{6}$	A
6	B

$$\frac{A \times 5}{B \times 6} = \frac{3}{4}$$

$$\frac{A}{B} = \frac{9}{10} \Rightarrow 9 \times 10 = \frac{190}{9} = \textcircled{21\frac{1}{9}} \text{ Ans}$$

Q1 A man have 3 sons A man can alone do a work in half time as compare to the total time taken by his all 3 sons. his 1st & 2nd son can do that work in 24 & 36 days. the man alone can do that work in $3\frac{3}{11}$ days. then in how many days is 3rd son alone do it work.



$$M = 2(A + B + C)$$

$$22 = 2(3 + 2 + C)$$

$$11 - 5 = C$$

$$C = 6$$

$$\frac{72}{6} = 12 \text{ Ans}$$

Q2 A & B do a work in 30 days after working together for 23 day B left the work AND now whole work complete in 33 day then in how many day B alone can do whole work together.

Ans

$$A + B = 30$$

$$A + B = 23$$

$$7(A + B)$$

$$10 \times A$$

$$A = 33$$

$$10 \times A = 7(A + B)$$

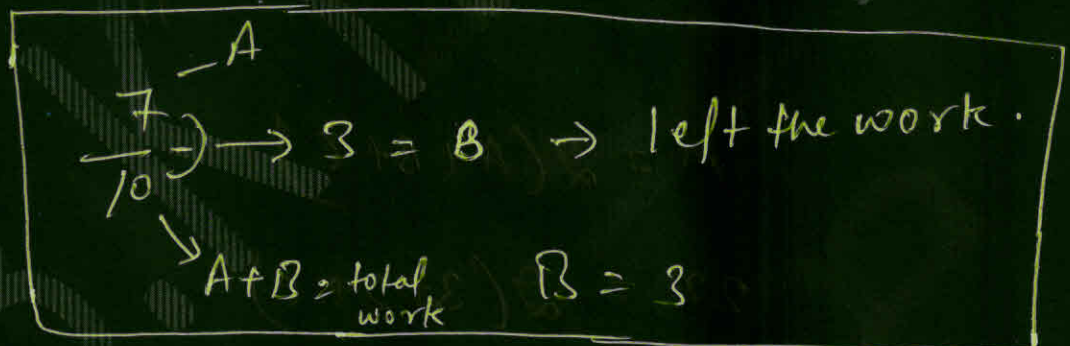
$$3A = 7B$$

$$\frac{A}{B} = \frac{7}{3} \Rightarrow 10 \times 30 = 300$$

$$\frac{300}{3} = 100 \text{ Ans}$$

Trick

To find
'B'



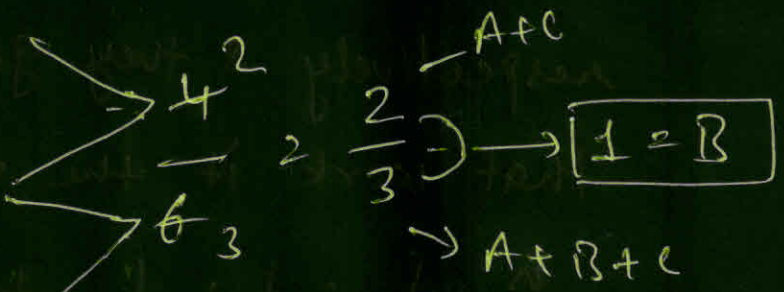
Q1 A, B, C can do a work in 24 days after working together for 20 days B left the work & the whole work finished in total 26 days. find the how many B alone can do whole work together.

Ans

$$A + B + C = 24$$

$$A + B + C = 20$$

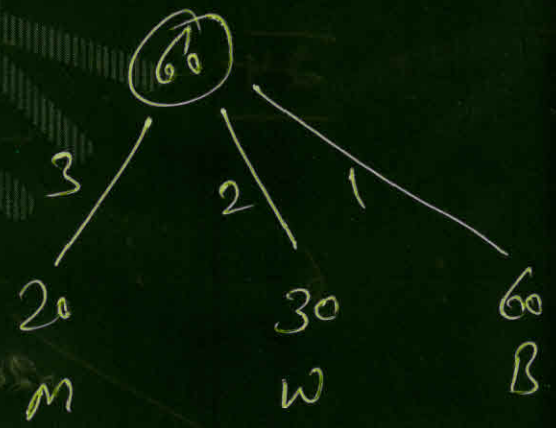
$$A + C = 26$$



$$24 \times 3 = \frac{72}{1} = \textcircled{72} \text{ Ans}$$

Q1

A man, A woman, & boy can do a work in 20, 30, 60 days respectively. how many boys must assist 2 men & 8 women to complete the whole work 2 day only.



$$2M + 8W + PB$$

$$2 \times 3 + 8 \times 2 + PB$$

$$6 + 16 + 8B = \textcircled{30} \text{ Ans}$$

$$\frac{60}{2} \times 3 = \underline{30}$$

Q1. A, B & C work for 7, 8 & 10 Days respectively & they got total ₹ 360 for that work if the ratio of their efficiency is $\frac{1}{3} : \frac{1}{4} : \frac{1}{6}$. then what money 'C' will get.

Ans:-

$$\frac{1}{3} \times 12 : \frac{1}{4} \times 12 : \frac{1}{6} \times 12$$

$$4 : 3 : 2$$

$$\times 7 : \times 8 : \times 10$$

$$\hline 28 : 24 : 20$$

$$7 : 6 : 5 = 18$$

(100)

Ans

$$\begin{array}{r} \checkmark \times 20 \quad 18 \text{ --- } 360 \\ 1 \text{ --- } 20 \end{array}$$