1. Rajesh and Rakesh alone can complete a piece of work in 12 and 24 days respectively, Rajesh started the work and after a few days Rakesh joined him and the work was completed in 10 days. After how many days, did Rakesh join Rajesh?

(A) 6 days (B) 7 days (C) 8 days (D) 10 days

Sol. **(A)**

Rajesh can do in 12 days 1 work.

So, in 1 days Rajesh can do $\frac{1}{12}$ work.

Similarly in 1 days Rakesh can do $\frac{1}{24}$ work

Let Rakesh joined after x days of starting of work.

So, In 10 days

$$\frac{1}{12}\times 10 + (10-x)\times\frac{1}{24} = 1$$

$$\Rightarrow \quad \frac{10-x}{24} = 1 - \frac{105}{12} = \frac{1}{6}$$

$$\Rightarrow \quad 60 - 6x = 24 \;\Rightarrow\; 6x = (60-24) = 36$$

$$x = \frac{36}{6} = 6 \text{ days} \quad \textbf{Ans.}$$

2. A can complete a piece of work in 36 days. He worked for 6 days and left. The remaining work was then completed by B in the 40 days. In how many days would the work be completed if they work together?

(A) $16\frac{2}{7}$ days (B) 18 days (C) $20\frac{4}{7}$ days (D) None of these

Sol. **(C)**

‡ In 36 days A can complete one piece of work.

∴ In 1 days A can complete $\frac{1}{36}$ piece of work.

∴ In 6 days A can complete $\left(\frac{1}{36}\times 6\right)$ piece of work

Let B complete work in x days

So, In 1 days $\frac{1}{x}$ part of work

∴ In 40 days $\frac{40}{x}$ part of work

$$\frac{40}{x} = \left(1 - \frac{1}{6}\right) = \frac{5}{6}$$

$$\Rightarrow \quad x = \frac{6\times 40}{5} = 48 \text{ days}$$

B will complete work in 48 days

So In 1 days B will complete $\frac{1}{48}$ part of work.

So, By combined effort of A and B = $\frac{1}{48}+\frac{1}{36}=\frac{3+4}{144}=\frac{7}{144}$ part of work in 1 days.

So, Let it will take x days to finish this work.

So, $\frac{7x}{144}=1$

$x=\frac{144}{7}=20\frac{4}{7}$ days **Ans.**

3. If 10 persons can do a job in 20 days, then 20 persons with twice the efficiency can do the same job in
(A) 5 days (B) 10 days (C) 20 days (D) 40 days

Sol. **(A)**

10 Person can do a job in 20 days

So 20 person can do a job in $\left(\frac{1}{2}\times 20\right)$ days

and when efficience of man will be twice then number of days required to be the job = $\frac{20}{2\times 2}=5$ days. **Ans.**

4. 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?
(A) 30 (B) 32 (C) 36 (D) 40

Sol. **(D)**

Let number of man = x

So, We can say x man perform a work in 60 days and if 8 man will increase.

Then $x \times 60 = (x + 8) \times 50$

$\Rightarrow$ $60x = 50x + 400$ $\Rightarrow$ $(60x - 50x) = 400$

$\Rightarrow$ $10x = 400$ $\Rightarrow$ $x = \frac{400}{10} = 40$

5 If 25 men earn Rs. 1000 in 10 days, how much will 15 men earn in 15 days :
(A) Rs. 800 (B) Rs. 850 (C) Rs. 900 (D) Rs. 950

Sol. **(C)**

‡ 25 Men earn in 10 days Rs. 1000

$\therefore$ 1 Man earn in 1 days Rs. $\frac{1000}{25\times 10}$

$\therefore$ 15 Men earn in 15 days Rs. $\frac{1000}{25\times 10}\times 15\times 15=900$ Ans.

6. 64 men working 8 hours a day plan to complete a piece of work in 9 days. However 5 days later they find that they had completed only 40% of the work. They now wanted to finish the remaining portion of the work in 4 more days. How many hours per day should they need to work in order to achieve the target?

(A) 12 Hours (B) 15 Hours (C) 11 Hours (D) 16 Hours

Sol. **(B)**

Let 64 Men work together for (8 × 5) hours and complete 0.4 part of work

$\therefore$ 1 men in 1 hour can complete $\left(\frac{0.4}{64\times 40}\right)$ part of work

Let number of working hour becomes x

the 64 men in x hour can complete $\left(\frac{0.4}{64\times 40}\times 64\times 4\right)$

part of work = 0.6 part of work

i.e. $\frac{0.4}{40}\times 4x = 0.6$

$x = \frac{0.6}{6.4}\times\frac{40}{4} = \frac{240}{16} = 15$ hours **Ans.**

7. Sanjay can do in 16 hours as much work as Vijay can do in 24 hours. Ajay can do the same work in 32 hours. If the three of them work together , they can complete the some work in 24 hours. In how many hours can Ajay alone complete the work?

(A) 112 Hours (B) 104 Hours (C) 102 Hours (D) 56 Hours

Sol. **(B)**

Let Sanjay can be x work in 16 hours

$\therefore$ In 1 hours Sanjay can do $\frac{x}{16}$ part of works.

In 24 hour Vijay can do x part of works

$\therefore$ In 1 hour Vijay can do $\frac{x}{24}$ part of works.

‡ Ajay can do x work in 32 hours

$\therefore$ Ajay can do in 1 hour $\frac{x}{32}$ part of works

Considly they can do = $\left(\frac{x}{16}+\frac{x}{24}+\frac{x}{32}\right)$

According to question $\left(\frac{x}{16}+\frac{x}{24}+\frac{x}{32}\right)\times 24 = 1$

$x\left(\frac{6+4+3}{96}\right)\times 24 = 1 \Rightarrow x = \frac{96}{24}\times\frac{1}{13} = \frac{4}{13}$

Ajay can do $\left(\frac{4}{13}\times\frac{1}{32}\right)$ part of work in 1 hour.

$\therefore$ Ajay will complete the work in $\left(\frac{32\times 13}{4}\right)$ hour.

Ajay can complete work done in 104 hours **Ans.**

8. Two taps A and B can fill a tank in 20 hours and 30 hours respectively. Just when the tank should have been full, it was noticed that an emptying pipe was also open. The emptying pipe was then closed and it took 6 hours more to fill the tank. In how much time does the emptying tank empty a full tank.

(A) 16 Hours (B) 18 Hours (C) 12 Hours (D) 24 Hours

Sol. **(D)**

A can fill tank in 20 hours

$\therefore$ In 1 hours A can fill $\left(\frac{1}{20}\right)$ part of tank

B can fill tank in 30 hours

$\therefore$ In 1 hours B can fill $\left(\frac{1}{30}\right)$ part of tank considly they can fill

$=\left(\frac{1}{20}+\frac{1}{30}\right)=\frac{3+2}{60}=\frac{5}{60}$ part of tank in 1 hour.

9. If 1 man or 2 women or 3 boys can do a piece of work in 44 days, then the same piece of work will be done by 1 man, 1 woman and 1 boy in

(A) 21 days (B) 24 days (C) 26 days (D) 33 days

Sol. **(B)**

In 44 days 1 man can complete *x* work

$\therefore$ In 1 day 1 man can do $\left(\frac{1}{44}\right)$ part of work

‡ In 44 days 2 woman can do a work

$\therefore$ In 1 days 1 woman can do $\left(\frac{1}{44\times 2}\right)$ part of work

Similarly in 1 day 1 boy can do (1/44.3) . so X=1/44+1/44.2+1/44.3=1/24

10. 20 women can finish a job in 20 days. After each day, one woman is replaced by a man or a boy alternatively starting with a man. Man is twice efficient and boy is half efficient as a woman. On which day does the job get completed.

(A) 20^{th} day (B) 19^{th} day (C) 17^{th} day (D) 18th Day

Sol. **(D)**

‡ 20 Woman can complete a job in 20 days

$\therefore$ 1 Woman can complete a job in 1 days

According to question

1 Boy can complete work in 2 days

and 1 Man can complete job in $\frac{1}{2}$ days

Let after *x* days work get completed. as total work=400 so by the end of 18th day all work 400 gets completed.

pattern ->19W+1M, 18W+1B.....