

Time & work

Simply again Invert

$$N \quad \frac{1}{N}$$

Total work = 30 amount of work in a day

↑ work ↓ time

- 1.) A can work 5 times faster than B and takes 60 days less than B to complete the work. In how many days does A & B individually can complete work

$$A = 5B$$

$$\frac{A}{n} = \frac{B}{n-60}$$

$$\frac{n}{5} = n-60$$

$$A = 300$$

$$n = 75 - B$$

15 day - A

- 2.) If 24 men can finish a work in 19 days then find the number of days required to complete same work by 30 men

$$24m =$$

$$30m =$$

- 3.) A can do the work in 10 days and B can do the work in 15 days. In how many days can they complete the work together?

A

Total

- 4.) P can do a work in 10 days, Q can do it in 15 days, and R can do it in 20 days. In how many days can they complete the work together?



$$24m = \frac{1}{10} \text{ in one day}$$

$$30m = ?$$

$$? \times 14 = \frac{30}{10}$$

$$? = \frac{1}{8}$$

$$? = 8 \text{ days}$$

$$1 \text{ day} = \frac{1}{30}$$

B  
P W  
A E R

3) A can do a work in 3 days. B can do the same work in 6 days and C can do the same work in 7 days. If they work together, in how many days they complete work

$$A \rightarrow \frac{1}{3} \quad B \rightarrow \frac{1}{6} \quad C \rightarrow \frac{1}{7}$$

Total work  $\rightarrow A + B + C$

$$\frac{1}{3} + \frac{1}{6} + \frac{1}{7} = \frac{9}{14} \text{ part of work}$$

$$\frac{14}{9} \text{ days}$$

4) P and Q can do work in 12 days. Q and R can do the same work in 16 days and R and P can do it in 24 days. Find the time in P, Q and R

$$P, Q \rightarrow \frac{1}{12} \quad Q, R \rightarrow \frac{1}{16} \quad R, P \rightarrow \frac{1}{24}$$

day)



$$P+Q+R+R+Q = \frac{1}{12} + \frac{1}{16} + \frac{1}{24}$$

$$2(P+Q+R) = \frac{9}{48} = \frac{3}{32}$$

$$\text{Total work} = \frac{32}{3}$$

- 5.) P can do a work in 30 days. Q is 25% more efficient completing same work. In how many days Q complete work.

100%	125%
100	125
$\frac{1}{30}$	$\frac{125}{100} \times \frac{1}{30} = \frac{1}{24}$

= 24 days

- 6.) If 3 men can do a work in 2 days and 4 boys can do the same work in 6 days, then in how many days will the same work be completed by 8 men

3m	2 days
4b	6 days

$$3m = 3(4b)$$

$$m = 4b$$

✓



$$8m + 8b$$

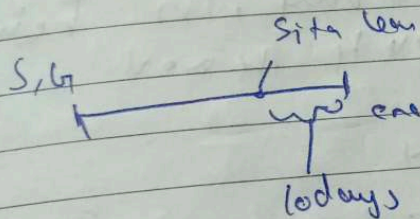
$$8 \times 4 = 32$$

$$32b + 8b = 40b$$

$$\begin{array}{r} 4b \quad \frac{1}{6} \\ 40b \quad ? \end{array}$$

$$1 \text{ day} = \frac{10}{6} = \text{Total work: } \frac{6}{10} \text{ day}$$

7) Sita and Gita can do a work in 20 days and 25 days. Both begin but after few days Sita leaves. The Gita finishes remaining work in 10 days. After how many days Sita leaves work?



$$S = \frac{1}{20} \quad G = \frac{1}{25} \quad G \text{ in 10 days} = \frac{1}{25} \times 10 = \frac{2}{5}$$

$$G + S = \frac{3}{5} \quad \text{--- (1)}$$

$$S + G = \frac{1}{20} + \frac{1}{25} = \frac{9}{100}$$

$$S + G = \frac{9}{100} \times x = \frac{9x}{100}$$

$$\frac{9}{100} = \frac{3}{5} \quad \therefore x = \frac{20}{3} \text{ days}$$



- 8) When P alone does a work, he takes 25 days, more than the time taken by P & Q together. But Q alone takes 9 days, more than P and Q. In what time, P and Q together finish work.

$$P+Q = N$$

$$P = N + 25$$

$$Q = N + 9$$

$$N = \sqrt{\text{eatrap} + \text{extron}}$$

$$N = \sqrt{25 \times 9} = 5 \times 3 = 15$$

- 9.) A can complete a work in 12 days and B can complete in 8 days. A works for 8 hours every day while B works for 10 hours every day. If A and B together start working 8 hours a day, in how many days will they complete the work.

$$A = 12d = 12 \times 8 = 96h$$

$$B = 8d = 10 \times 8 = 80h$$

(convert) 96h  
to d

$$A \rightarrow \frac{1}{96} \quad B \rightarrow \frac{1}{80}$$

$$A+B = \frac{1}{96} + \frac{1}{80} = \frac{176}{96 \times 80} = \frac{96 \times 80}{176}$$

$$8$$

$$A+B = 60/11$$



Ray can build a house alone in 16 days  
but Suray alone can build it in 12 days  
Ray and Suray on alternate days. If Ray  
works on first day, the house will be  
built in how many days?

$$R \rightarrow 16 \text{ d} = \frac{1}{16} \quad S \rightarrow 12 \rightarrow \frac{1}{12}$$

R S R S R

$$\frac{1}{16} + \frac{1}{12} = \frac{7}{48}$$

here we are taking 5 days  
instead of 7. Can we should  
choose a multiple value  
with less than

$$\frac{7}{48} \times 6 = \frac{42}{48} = \frac{7}{8}$$

$\frac{7}{8}$  work is done

$$1 - \frac{7}{8} = \frac{1}{8} \text{ remain}$$

$$B - \frac{1}{16} \quad \frac{1}{8} \rightarrow \frac{1}{16}$$

$$14 - 8 = \frac{1}{12} \rightarrow \frac{1}{12} \rightarrow \frac{1}{16}$$

$$\frac{1}{16} = 2 \times \frac{1}{12} \quad 2 = \frac{3}{4}$$

$$2 = \frac{3}{4}$$

$$13 \frac{3}{4}$$

$$\frac{1}{12}$$

$$\frac{1}{16} ?$$