

# Time & Work

## Important & Tricks

1.  $N \xrightarrow{\text{Just Trick}} \frac{1}{N}$

2. If for one work 8 days are required, then for 1 day  $\frac{1}{8}$  work is done

3. Work ↑ Time ↓ Days ↓  
 Men ↑ Time ↓ Days ↓

### Question No 1

$$5T_A = T_B \rightarrow ①$$

$$D_A = D_B - 60 \rightarrow ②$$

$$5(N - 60) = N$$

$$4N - 300 = 0$$

$$\therefore N = 75 \text{ days}$$

$$T_A = 15 \text{ days}$$

### Question No 2

$$24 \text{ men} \rightarrow 10 \text{ days}$$

$$30 \text{ men} \rightarrow ?$$

$$24 \rightarrow 1 \\ 10$$

$$24x = 30$$

$$30 \rightarrow x$$

$$10$$

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

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

★ Always find 1 day work

Question no 3

$$A \rightarrow 3$$

$$B \rightarrow 6$$

$$C \rightarrow 7$$

$$\begin{aligned} & \frac{1}{3} + \frac{1}{6} + \frac{1}{7} \\ &= \frac{3}{6} + \frac{1}{7} \\ &= \frac{21+6}{42} \\ &= \frac{27}{42} \end{aligned}$$

$$\text{Total time} = \frac{14}{1.55}$$

$$\begin{array}{r} 9) 14 \\ - 9 \\ \hline 50 \\ - 45 \\ \hline 5 \\ - 45 \\ \hline 5 \end{array}$$

$$\text{Time} = 1\frac{5}{9}$$

Question No 4

$$P + Q = \frac{1}{12}$$

$$Q + R = \frac{1}{16}$$

$$R + P = \frac{1}{24}$$

$$2(P+Q+R) = \frac{1}{12} + \frac{1}{16} + \frac{1}{24}$$

$$= \frac{3}{24} + \frac{1}{16}$$

$$= \frac{1}{8} + \frac{1}{16}$$

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

$$P + Q + R = \frac{3}{16 \times 2}$$

$$= \frac{3}{32}$$

$$\frac{32}{3} \text{ days}$$

$$10 \frac{2}{3} \text{ days}$$

## Question No 5

$$P \rightarrow \frac{1}{30}$$

$$\frac{30 \times 25}{100}$$

$$\begin{array}{r} 7.5 \\ 230.10 \\ - 7.5 \\ \hline 22.5 \end{array}$$

2<sup>nd</sup> Try  $\Rightarrow$

$$\begin{aligned} P &\rightarrow 100\% \rightarrow \frac{1}{30} \\ Q &\rightarrow 125\% \rightarrow \frac{125}{100} \times \frac{25}{30} = \frac{25}{30} = \frac{5}{6} \\ E &= \frac{5}{6} \times 24 = 20 \end{aligned}$$

Q  $\rightarrow$  24 days

## Question No. 6

$$3M \rightarrow \frac{1}{2}$$

$$4B \rightarrow \frac{1}{6}$$

$$1M \rightarrow \frac{1}{6}$$

$$1B = \frac{1}{24}$$

$$\frac{8}{6} + \frac{8}{24}$$

$$= \frac{32+8}{24} \Rightarrow \frac{40}{24}$$

$\frac{1}{2}$  day

$$\begin{array}{r} 20 \\ 40 \\ \hline 24 \\ 12 \\ 3 \end{array}$$

~~X wrong~~  
2<sup>nd</sup> Try →

Sry  
It's  
correct

It's correct ⇒  $\frac{5}{3}$  day work

$\frac{3}{5}$  days will require.

Question No 7

$$\text{Sita} \rightarrow 1/20$$

$$\text{Gita} \rightarrow 1/25$$

$$\frac{1}{20} + \frac{1}{25} = \frac{25+20}{500} = \frac{45}{500} = \frac{9}{100}$$

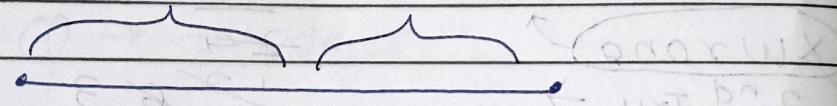
$$\frac{100}{9} \text{ days}$$

$$\frac{9}{100} = x + \frac{1}{10} + 3$$

$$\frac{9}{100} - \frac{1}{10} = x$$

$$\frac{9}{100} - \frac{1}{10} = x$$

$$\frac{9}{100}x \quad \frac{1}{10}$$



$$\frac{9x}{100} + \frac{1}{10} = 1$$

— x — o — x —

Formula  $\Rightarrow$

Remaining days  $\times$  work = Part of that whole work

worked

**IMPORTANT**



$$\frac{10 \times 1}{25} = \frac{2}{5}$$

$$1 - \frac{2}{5} = \frac{3}{5} \quad \text{Remaining part}$$

$$x \times \frac{3}{5} = \frac{3}{5},$$

100      5 |

20

$$\therefore \boxed{x = \frac{20}{3}} \text{ days}$$

Question NO 8

Formula  $\rightarrow$

$$N = \sqrt{\text{Extra P} \times \text{Extra Q}}$$

$$P + Q = x \text{ days}$$

↑  
days

$$P = x + 25$$

$$Q = x + 9$$

$$\frac{1}{(x+25)} + \frac{1}{(x+9)} = \frac{1}{x}$$

$$\begin{array}{r} 4 \\ 25 \\ 9 \\ 225 \end{array} \quad \begin{array}{r} x+9 + x+25 \\ x^2 + 9x + 25x + 225 \end{array} = \frac{1}{x}$$

$$\therefore \frac{2x+34}{x^2+9x+25x+225} = \frac{1}{x}$$

$$\therefore 2x^2 + 34x = x^2 + 34x + 225$$

$$\therefore x^2 = 225 \quad \therefore \boxed{x = 15}$$

Question No 9

$$A \rightarrow 1/12 \rightarrow \frac{1}{12 \times 8}$$

$$B \rightarrow 1/8 \rightarrow \frac{1}{8 \times 10}$$

A → 8 hours

B → 10 hours

A + B → 8 hours

How many days?

$$8 \left( \frac{1}{12 \times 8} + \frac{1}{8 \times 10} \right)$$

$$= \frac{1}{12} + \frac{1}{10}$$

$$= \frac{22}{110}$$

$$= \frac{2}{10}$$

$$= \frac{60}{11}$$

$$= 5 \frac{5}{11}$$

# Question NO 10

$$R \rightarrow \frac{1}{16}$$

$$S \rightarrow \frac{1}{12}$$

$\frac{1}{16}$	$\frac{1}{12}$	$\frac{1}{16}$	$\frac{1}{12}$
1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>

(brace)

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

(brace)  
2

(brace)

12 days

\* Find for 2 days work if there is given alternate days.

$$13^{th} \text{ day} \rightarrow \frac{7}{8} \text{ is done}$$

$$\frac{1}{8} \text{ is Rem}$$

$$\frac{1}{8} - \frac{1}{16} \Rightarrow \frac{1}{16} \text{ Rem}$$

$$14^{th} \text{ day} \Rightarrow \frac{1}{16} - \frac{1}{12}$$

$$\Rightarrow \frac{\frac{1}{16}}{\frac{1}{12}} = \frac{12}{16} = \frac{3}{4} \text{ days}$$

+ 13  $\frac{3}{4}$  days  $\frac{1}{12}$

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