

$$\underline{A = 20} \quad \underline{B = 30}$$

A & B together ?

one day work

$$\frac{1 \times 3}{20} + \frac{1 \times 2}{30} = \frac{3+2}{60} = \frac{5}{60} = \boxed{\frac{1}{12}}$$

$$\checkmark \boxed{A+B=12}$$

$$A = 20, B = 30, C = 60$$

$$\frac{1 \times 3}{20} + \frac{1 \times 2}{30} + \frac{1 \times 1}{60} = \frac{3+2+1}{60} = \frac{6}{60}$$

$$\checkmark \boxed{A+B+C=10}$$

Time 60

1) $A = 20$ ——— $\frac{60}{3}$ mts/day

$B = 30$ ——— 2 mts/day

2) $A = 20$ ——— 3

$B = 30$ ——— 2

$C = 60$ ——— 1

6

3) $A = 50$ ——— 4

$B = 40$ ——— 5

$C = 20$ ——— 10

19

$A + B = 12$ $\rightarrow 5$ mts/day

$A + B + C = \frac{60}{6} = 10 \text{ days}$

$A + B + C = \frac{200}{19} = \boxed{10 \frac{10}{19}}$

$$\begin{array}{l}
 4) \quad A = \underline{40} \text{ ————— } 1 \quad \boxed{40} \\
 \quad B = ? \text{ ————— } 1 \\
 \hline
 \quad A + B = \underline{20} \text{ ————— } 2 \\
 \\
 \quad B = \frac{40}{1} \\
 \quad \boxed{? = B = 40}
 \end{array}$$

$$\begin{array}{l}
 5) \quad A = 25 \text{ ————— } 2 \quad \underline{50} \\
 \quad B = 50 \text{ ————— } 1 \\
 \quad C = ? \\
 \hline
 \quad A + B + C = 10 \text{ ————— } 5 \\
 \quad \underbrace{\quad \quad \quad} \quad \downarrow \quad \quad \quad \\
 \quad 3 + 2 = 5 \\
 \\
 \quad C = \frac{50}{2} = \boxed{25 \text{ days}}
 \end{array}$$

$$\begin{array}{l}
 6) \quad A = 12 \text{ ————— } 5 \quad \underline{60} \\
 \quad B = ? \\
 \quad C = 20 \text{ ————— } 3 \\
 \hline
 \quad \underbrace{A + B + C}_{\substack{2 \\ 8}} = 6 \text{ ————— } 10 \\
 \\
 \quad B = \frac{60}{2} = \boxed{30 \text{ days}}
 \end{array}$$

$$7) A = 20 \text{ ——— } 6 \quad \boxed{120}$$

$$B = 40 \text{ ——— } 3$$

$$C = 30 \text{ ——— } 4$$

$$\underline{\hspace{1cm}} \quad 13$$

$$A+B+C = \frac{50 \times 9 \times 120}{13} = \frac{60}{13}$$

$$\boxed{A+B+C = 4 \frac{8}{13}}$$

$$8) A = 15 \text{ ——— } 4 \quad \boxed{60}$$

$$B = 20 \text{ ——— } 3$$

$$\underline{\hspace{1cm}} \quad 7$$

After 4 days
B left

$$(A+B) \times 4 + (A \times 9) = T.W.$$

$$(7 \times 4) + (4 \times 9) = \underline{60}$$

$$4x = 32$$

$$\boxed{x = 8}$$

$$\boxed{\text{Total days} = 12}$$

9) A is $20\% = \frac{1}{5}$ more efficient than B ?

$$\frac{A}{B} = \frac{120}{100} = \frac{6}{5}$$

$$\begin{array}{l} A+B=30 \\ A=? \\ B=? \end{array}$$

$$T.W. = (A+B) \times 30 = 11 \times 30 = \boxed{330}$$

$$A = \frac{330}{6} = 55$$

$$B = \frac{330}{5} = 66$$

10) A is $25\% = \frac{1}{4}$ less efficient than B ?

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

$$T.W. = (A+B) \times 40 = 7 \times 40 = 280$$

$$B = \frac{280}{4} = \boxed{70 \text{ days}}$$

11) B is $33\frac{1}{3}\% = \frac{1}{3}$ more efficient than A ?

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

$$T.W. = (A \times 60) = 3 \times 60 = \boxed{180}$$

$$B = \frac{180}{4} = 45$$

$$A+B = \frac{180}{7} = \boxed{25\frac{5}{7}}$$

12) Efficiency of A is $80\% = \frac{4}{5}$ of efficiency of B ?

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

$$T.W. = (A+B) \times 20 = 9 \times 20 = 180$$

$$A = \frac{180}{4} = 45$$

$$B = \frac{180}{5} = 36$$