TIME & WORK

FACTS TO REMEMBER:

1. More persons means Less days to complete a work
2. If “A” can complete a work in 'x' days ,

then in 1 day “A” can complete $\frac{1}{x}$ units of work

[Also if “B” can complete the same job in 'y' days , then in 1 day “B” can complete $\frac{1}{y}$ units of work]

3. So, “A” & “B” working together will complete the same work in $\frac{xy}{(x+y)}$ days
4. If “A” & “B” working together will complete a work in 'z' days and if “A” alone can complete the same work in 'x' days , then “B” alone will complete the work in $\frac{xz}{(x-z)}$ days.

5. PROPORTIONALITY RELATION IN TIME & WORK

If P_1 persons working D_1 days to complete W_1 amount of work of a Job

& P_2 persons working D_2 days to complete W_2 amount of work of the same Job

then $P_1D_1W_1=P_2D_2w_2$

More generally $P_1D_1W_1H_1E_1=P_2D_2w_2H_2E_2$

where H : number of hours and E : Efficiency

Note : (a) A+B finishing a job in D_1 days

B+C finishing the same job in D_2

C+A also finishing the same job in D_3 days

then 2(A+B+C) will finish the job in $D=\frac{(D_1\times D_2\times D_3)}{(D_1\times D_2+D_2\times D_3+D_3\times D_1)}$ days

and Hence (A+B+C) will finish the job in “2D” days.

Also “A” alone will do the work in $\frac{(2D \times D_2)}{(D_2 - 2D)}$ days, and so on