

## 8. Time & Work

- If a person can do a certain task in  $t$  hours, then in 1 hour he would do  $1/t$  portion of the task. A does a particular job in 'a' hours and B does the same job in 'b' hours, together they will take  $\frac{ab}{a+b}$  hours.
- A does a particular job in 'a' hours more than A and B combined whereas B does the same job in 'b' hours more than A and B combined, then together they will take  $\sqrt{ab}$  hours to finish the job.

- A does a particular job in 'a' hours, B does the same job in 'b' hours and C does the same job in 'c' hours, then together they will take  $\frac{abc}{ab+bc+ca}$  hours.
- If A does a particular job in 'a' hours and A & B together do the job in 't' hours, then B alone will take  $\frac{at}{a-t}$  hours.
- If A does a particular job in 'a' hours, B does the same job in 'b' hours and

A, B and C together do the job in 't' hours, then

C alone can do it in  $\frac{abt}{ab-at-bt}$  hours.

A and C together can do it in  $\frac{bt}{b-t}$  hours.

B and C together can do it in  $\frac{at}{a-t}$  hours

- If the objective is to fill the tank, then the inlet pipes do positive work whereas the outlet pipes do negative work. If the objective is to empty the tank, then the outlet pipes do positive work whereas the inlet pipes do negative work.