BALABHADRA SKILL DEVELOPMENT ACADEMY
MATHS FORMULA - 13
ARITHMETIC

WORK, TIME AND WAGES

Sl	Situation	Formula
1	If time taken by a person to complete a work is x days, then the work done in 1 day is	$\frac{1}{x}$
2	If a person can do $\frac{1}{x}$ part in one day, then he completes that work in	x days
3	If the efficiency of doing a work of A is x times to that of B, then A completes the work in that of B.	$\frac{1}{x}$ times
4	If A and B can do a piece of work in x and Y days respectively, then they will finish the work in	$\frac{xy}{x+y}$ days
5	If A and B can do a piece of work in x days and A alone can do the same work in y days, then time taken by B alone to finish the same work wilk be	$\frac{xy}{y-x}$
6	If A,B and C can alone finish a work in x, y and z days, respectively, then, they will finish the work in	$\frac{xyz}{xy+yz+zx}$
7	If A and B can do a piece of work in x and y days, respectively and they received Rs.z as wages by working together, then share of	$A = Rs.\frac{y}{x+y} \times z$
		$B = Rs.\frac{x}{x+y} \times z$
8	If A and B can do a piece of work in x days, B and C can do same work in y days and C and A can do same work in z days. Then, they will complete the same work in	$\frac{2xyz}{xy+yz+zx}$ days
9	A and B can do a piece of work in x and y days, respectively. If they start working together and after t days A leaves the work, then time taken to finish the work will be	$\frac{x}{y} \times (y-t)$ days

10	A and B can do a piece of work in x and y days, respectively. If A and B started working together but A left the work t days before the completion of work, then time taken to complete the work will be	$\frac{(x+t)y}{x+y}$ days
11	A, B and C can do a piece of work in x,y and z days, respectively. They started working together. A and B left the work t_1 days and t_2 days before the completion of work respectively, then that work will be finished in	$\frac{xyz}{xy+yz+zx}\left(1+\frac{x}{t_1}+\frac{y}{t_2}\right)$ days
12	If a men or b boys can do a work in x days, then c men and d boys will do the same work in	$\frac{x}{\frac{c}{a}+\frac{d}{b}}$ days
13	If a men can do a piece of work in x days and b boys can do the same work in y days, then time taken to complete the same work by c men and d boys will be	$\frac{1}{\frac{c}{ax}+\frac{d}{by}}$ days
14	There is ration for a days for x men in a compound if after b days y men joined them or y men left them, then the remaining ration will be sufficient for	$\frac{x(a-b)}{x\pm y}$ days for $(x\pm y)$men
15	If some persones can do a work in x days but due to some reasons a persons could not participate in the work and the work is completed in y days, then number of persons in the starting	$\frac{ay}{y-x}$
16	If A can do a work in x days and B can do y% faster than A, then B will complete the work in	$\frac{100x}{100+y}$ days
17	Some persons can do a work in x days. If m persons left (joined) the group, then they take y days more (or less) to complete the work. Thus, the number of persons in the starting will be	$\left(\frac{x\pm y}{y}\times m\right)$

18	If M_1 persons can do W_1 work in d_1 days working h_1 h in a day earning a sum of Rs.R_1 and M_2 persons can do W_2 work in d_2 days working h_2 h in a days earning a sum of Rs.R_2 then	$\frac{M_1 \times d_1 \times h_1}{W_1 \times R_1} = \frac{M_2 \times d_2 \times h_2}{W_2 \times R_2}$
19	If A, B and C can do a piece of work in x, y and z days, respectively. The contract for the work is Rs.a and all of them work together, then	Share of A = Rs. $\left(\frac{ayz}{xy + yz + zx}\right)$
		Share of B = Rs. $\left(\frac{azx}{xy + yz + zx}\right)$
		Share of C = Rs. $\left(\frac{axy}{xy + yz + zx}\right)$
20	A can do a piece of work in x days. With the help of B, A can do the same work in y days. If they get Rs.a that work, then	Share of A = Rs. $\left(\frac{ay}{x}\right)$
		Share of B = Rs. $\left(\frac{a(x-y)}{x}\right)$
21	If 'x' takes 'a' days more to complete a work than the time taken by (x+y) to do same work and 'y' takes 'b' days more than the time taken by (x+y) to do the same work, then (x+y) do the work in	$\sqrt{ab}$ days