

Time and Work Quick Maths Formulas

1. If M1 persons can do W1 work in D1 days and M2 persons can do W2 work in D2 days, then the formula will be -

$$M1 * D1 * W1 = M2 * D2 * W2$$

If we add Time for both the groups T1 and T2 respectively, then the formula will become –

$$M1 * D1 * T1 * W1 = M2 * D2 * T2 * W2$$

And if we add efficiency for both the groups E1 and E2 respectively, then the formula becomes –

$$M1 * D1 * T1 * E1 * W1 = M2 * D2 * T2 * E2 * W2$$

2. If A can do a piece of work in x days and B can do it in y days, then A and B working together will do the same work in $[(x*y)/(x+y)]$ days.
3. If A, B and C can do a work in x, y and z days respectively, then all of them working together can finish the work in $[(x*y*z) / (xy + yz + zx)]$

4. If A and B together can do a piece of work in x days and A can do it in y days, then B alone can do the work in $(x*y) / (x-y)$ days.
 5. Original Number of Workers = (No. of more workers * No. of days taken by the second group) / No. of less days
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Time and Distance Quick Maths Formulas

1. Speed = Distance / Time
2. If the speed of a body is changed in the ratio $a:b$, then the ratio of the time taken changes in the ratio $b:a$.
3. If a certain distance is covered at x km/hr and the same distance is covered at y km/hr, then the average speed during the whole journey is $2xy / (x+y)$ km/hr.
4. Required Distance = [(Product of two speeds) / (Difference of two speeds)] * Diff between arrival times.

5. Required Distance = Total Time Taken * [(Product of two speeds) / (Addition of two speeds)]

6. Distance = $(2 * \text{Time} * S1 * S2) / (S1 + S2)$

Where S1 = Speed during first half and S2 = Speed during second half of journey

7. Meeting point's distance from starting point = $(S1 * S2 * \text{Difference in time}) / (\text{Difference in speed})$

8. Distance travelled by A = $2 * \text{Distance of two points} (a / a+b)$

9. Distance = $[(\text{Multiplication of speeds}) / (\text{Difference of Speeds})] * (\text{Difference in time to cover the distance})$

10. Meeting Time = $(\text{First's starting time}) + [(\text{Time taken by first}) * (\text{2nd's arrival time} - \text{1st's starting time})] / (\text{Sum of time taken by both})$

11. Time of rest per hour = $(\text{Difference of Speed}) / (\text{Speed without Stoppage})$

12. Distance = $(\text{Total Time}) * (\text{Multiplication of two speeds}) / (\text{Sum of Speeds})$

13. Speed = $[2 * (\text{Increase in speed}) * (\text{Decrease in speed})] / \text{Difference in Increase and Decrease in Speeds}$