Shortcut tricks of Time and Work

Time and Work problems are most frequently asked problems in quantitative aptitude. To solve these problems very quickly, you should understand the concept of Time and Work and some shortcut methods.

If a man can do a piece of work in 5 days, then he will finish 1/5th of the work in one day.

If a man can finish 1/5th of the work in one day then he will take 5 days to complete the work.

If a man 5/6th of work in one hour then he will take 6/5 hours to complete the full work.

If A works three times faster than B then A takes 1/3rd the time taken by B.

Here are some shortcut rules which can be very useful while solving Time and Work problems.

In total 9 rules are given here.

Rule 1: Universal Rule
This rule can be used in almost every problem.

If M_1 persons can do W_1 work in D_1 days and M_2 persons can do W_2 works in D_2days then we can say $M_1D_1W_2 = M_2D_2W_1$

If the persons work T_1 and T_2 hours per day respectively then the equation gets modified to $M_1D_1T_1W_2 = M_2D_2T_2W_1$

If the persons has efficiency of E_1 and E_2 respectively then,
$M_1D_1T_1E_1W_2 = M_2D_2T_2E_2W_1$

Rule 2:
If A can do a piece of work in n days, then
The work done by A in one day = 1/n

Rule 3:
If A can do a work in D_1 days and B can do the same work in D_2 days then A and B together can do the same work in $\frac{D1*D2}{D1+D2}$ days.

Rule 4:
If A is twice as good a workman as B, then A will take half of the time taken by B to complete a piece of work.

Rule 5:
If A is thrice as good a workman as B, then A will take one third of the time taken by B to complete a piece of work.

Rule 6:
If A and B together can do a piece of work in x days, B and C together can do in y days and C and A together can do in z days, then the same work can be done

By A alone in $\frac{2xyz}{xy + yz - zx}$ days.

By B alone in $\frac{2xyz}{yz + zx - xy}$ days.

By C alone in $\frac{2xyz}{zx + xy - yz}$ days.

By A, B and C together in $\frac{2xyz}{xy + yz + zx}$ days.

Rule 7:
If A can do a piece of work in D_1 days, B can do in D_2 days and C can do in D_3 days then they together can do the same work in

$\frac{D1\ D2\ D3}{D1D2 + D2D3 + D3D1}$ Days.

Rule 8:

If A and B together can do a piece of work in D_1 days and A alone can do it in D_2days, then B alone can do the work in

$\frac{D1*D2}{D2 - D1}$ days.

Rule 9:
If the number of men are changed in the ratio of m:n, then the time taken to complete the work will change in the ratio n:m