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## Ch-9 Force & Laws of Motion

### Home Assignment

1) How much net force is required to accelerate a 1000 kg car at 4.00 $m/s^2$?

Ans, Given → $m = 1000\ kg$
$a = 4\ m/sec^2$

To find → Force = ?

Solution :- we know that
force = mass × acceleration
i.e. $F = m \times a$
By putting the values in the above formula.
$\Rightarrow F = 1000 \times 4$
$\Rightarrow F = 4000$
$F = 4000\ N$

So, the net force is required to accelerate a 1000 kg car at $4\ m/s^2$ is 4000 N

2) A driver accelerates his car first at the rate of $4\ m/s^2$ and then at the rate of $8\ m/s^2$. Calculate the ratio of the force exerted by the engines?

Ans)

$$F_1 = ma_1 = 4m\,l/s^2 = 4m$$

$$F_2 = ma_2 = 8m\,l/s^2 = 8m$$

$$\frac{F_1}{F_2} = \frac{ma_1}{ma_2} = \frac{4m}{8m}$$

$$\frac{F_1}{F_2} = \frac{a_1}{a_2} = \frac{4}{8} = \frac{1}{2}$$

$$F_1 : F_2 = 1 : 2$$