## Answer on Question \#61262-Physics-Mechanics-Relativity

A vehicle of mass 20 kg is moving with a velocity of 4 ms , find the magnitude of the force that is to be applied on the vehicle so that the vehicle have a velocity of 1 ms after travelling a distance of 20 m .

## Solution

We use kinematic equation for deceleration:

$$
v_{i}^{2}-v_{f}^{2}=2 a d \rightarrow a=\frac{v_{i}^{2}-v_{f}^{2}}{2 d}
$$

From the Second Newton's law:

$$
F=m a=m \frac{v_{i}^{2}-v_{f}^{2}}{2 d}=20 \frac{4^{2}-1^{2}}{2(20)}=7.5 \mathrm{~N} .
$$

Answer: 7.5 N.

