



Examples.

A car is moving at 6 m/s. Let's assume that the wheels of a 5-kg car apply 10 N of net force. What is the acceleration if friction and drag are negligible?

DATA

EQUATION

net force=10 N

$$F = m \times a$$

$$10 \text{ N} = 5 \text{ kg} \times a$$

mass= 5 kg

$$a = \frac{10 \text{ N}}{5 \text{ kg}} = 2 \text{ m/s}^2$$

acceleration ?

$$a = 2 \text{ m/s}^2$$

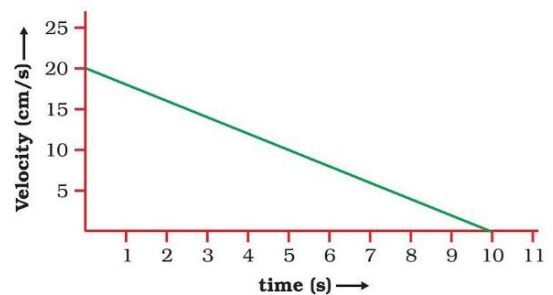
This is the velocity-time graph of a 1500 kg car moving along a straight line. What is the net force acting on the car?

DATA

EQUATION

mass= 1500 kg

$$F = m \times a$$



net force= ?

from the graph, we note that

acceleration ?

at time= 0 s

at time= 10 s

initial velocity = 20 cm/s || final

velocity= 0 m/s

a =

$$\frac{\text{final velocity} - \text{initial velocity}}{\text{time taken}}$$

$$a = \frac{0 \text{ cm/s} - 20 \text{ cm/s}}{10 \text{ s} - 0 \text{ s}} = -2$$

cm/s²

$$a = -0,02 \text{ m/s}^2 \text{ (SIU)}$$

$$F = m \times a$$

$$F = 1500 \text{ kg} \times (-0,02) \text{ m/s}^2 =$$

$$F = 30 \text{ N}$$