

### Question #59748, Physics – Mechanics | Relativity

Suppose a sled is accelerating at a rate of  $2\text{m/s}^2$  if the net force is tripled and mass is halved then what is the new acceleration

#### Solution

According to Newton's second law:  $F = ma$ , if  $a = 2 \text{ m/s}^2$  then  $F_0 = 2m_0$ , if the net force is tripled and mass is halved then  $F = 3F_0$ ,  $m = 2m_0$ .

$$\begin{cases} F_0 = 2m_0 \\ 3F_0 = a \cdot 2m_0 \end{cases} \text{ consequently } a = 3\text{m/s}^2$$

**Answer the questions:**  $a = 3\text{m/s}^2$