



In 1D: $F = ma$ or $a = \frac{1}{m} F$

∴ $\frac{1}{m} = \text{slope of } a \text{ vs. } F \text{ graph:}$

$$\text{slope}_1 = \frac{5a_1}{2}$$

$$\text{slope}_2 = \frac{5a_1}{5} = a_1$$

$$\text{slope}_3 = \frac{2a_1}{5}$$

$$\therefore \frac{m_1}{m_2} = \frac{1/\text{slope}_1}{1/\text{slope}_2} = \frac{2/5a_1}{1/a_1} = \frac{2}{5}$$

$$\therefore m_1 = \frac{2}{5} m_2 = \underline{0.08 \text{ kg}}$$

$$\frac{m_3}{m_2} = \frac{1/\text{slope}_3}{1/\text{slope}_2} = \frac{5/2a_1}{1/a_1} = \frac{5}{2}$$

$$m_3 = \frac{5}{2} m_2 = \underline{0.5 \text{ kg}}$$