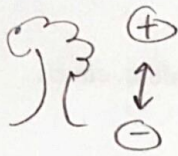


# MONDOOSE

①



$$\begin{aligned}\Delta \vec{x} &= -12 \text{ m} \\ \vec{v}_i &= 0 \frac{\text{m}}{\text{s}} \\ \vec{v}_f &= ? \\ \vec{a} &= -10.0 \frac{\text{m}}{\text{s}^2} \\ \Delta t &= ?\end{aligned}$$

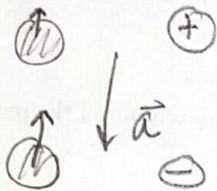
$$v_f^2 = v_i^2 + 2a\Delta x$$

$$v_f^2 = (0 \frac{\text{m}}{\text{s}})^2 + 2(-10 \frac{\text{m}}{\text{s}^2})(-12 \text{ m})$$

$$\vec{v}_f = -\sqrt{240 \frac{\text{m}^2}{\text{s}^2}} = -15.5 \frac{\text{m}}{\text{s}}$$

↑ falling down

②

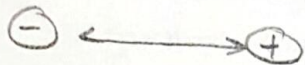


$$\begin{aligned}\Delta \vec{x} &= 0.750 \text{ m} \\ \vec{v}_i &= 1.20 \frac{\text{m}}{\text{s}} \\ \vec{v}_f &= 0.987 \frac{\text{m}}{\text{s}} \\ \vec{a} &= ? \\ \Delta t &= ?\end{aligned}$$

$$v_f^2 = v_i^2 + 2a\Delta x$$

$$(0.987 \frac{\text{m}}{\text{s}})^2 = 0 + 2a(0.750)$$

$$a = -0.310 \frac{\text{m}}{\text{s}^2}$$



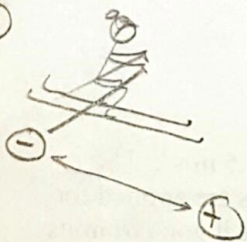
$$75 \frac{\text{km}}{\text{hr}} \cdot \frac{1000 \text{ m}}{1 \text{ km}} \cdot \frac{1 \text{ hr}}{3600 \text{ s}} = 20.8 \frac{\text{m}}{\text{s}}$$

$$\begin{aligned}\Delta \vec{x} &= ? \\ \vec{v}_i &= -20.8 \frac{\text{m}}{\text{s}} \\ \vec{v}_f &= 0 \\ \vec{a} &= ? \\ \Delta t &= 21 \text{ s}\end{aligned}$$

$$\Delta x = \left( \frac{v_i + v_f}{2} \right) \Delta t$$

$$\Delta x = \left( \frac{-20.8 \frac{\text{m}}{\text{s}} + 0}{2} \right) (21 \text{ s}) = -218 \text{ m}$$

④



$$\begin{aligned}\Delta \vec{x} &= 17.5 \text{ m} \\ \vec{v}_i &= 0 \frac{\text{m}}{\text{s}} \\ \vec{v}_f &= ? \\ \vec{a} &= +1.40 \frac{\text{m}}{\text{s}^2} \\ \Delta t &= ?\end{aligned}$$

$$v_f^2 = v_i^2 + 2a\Delta x$$

$$v_f^2 = 0^2 + 2(1.40 \frac{\text{m}}{\text{s}^2})(17.5 \frac{\text{m}}{\text{s}})$$

$$\vec{v}_f = +7.00 \frac{\text{m}}{\text{s}}$$