

P #26

Ch. 3 - pg 76

$$\begin{aligned} d_y &= 1.5 \text{ m} \\ v_x &= 5.0 \text{ m/s} \end{aligned}$$

$$d_y = \frac{1}{2} a \cdot t^2 \quad \text{so} \quad (1.5 \text{ m}) = \frac{1}{2} \cdot (9.8 \text{ m/s}^2) \cdot t^2$$

$$t = .55 \text{ sec}$$

$$\begin{aligned} d_x &= v_x \cdot t \\ &= (5.0 \text{ m/s}) \cdot (.55 \text{ sec}) \end{aligned}$$

$$d_x = 2.8 \text{ m}$$

v_x remains constant, so

$$v_x = 5.0 \text{ m/s}$$

$$\begin{aligned} v_y &= v_{oy} + a \cdot t \\ &= 0 \text{ m/s} + (9.8 \text{ m/s}^2) \cdot (.55 \text{ sec}) \end{aligned}$$

$$v_y = -5.4 \text{ m/s}$$