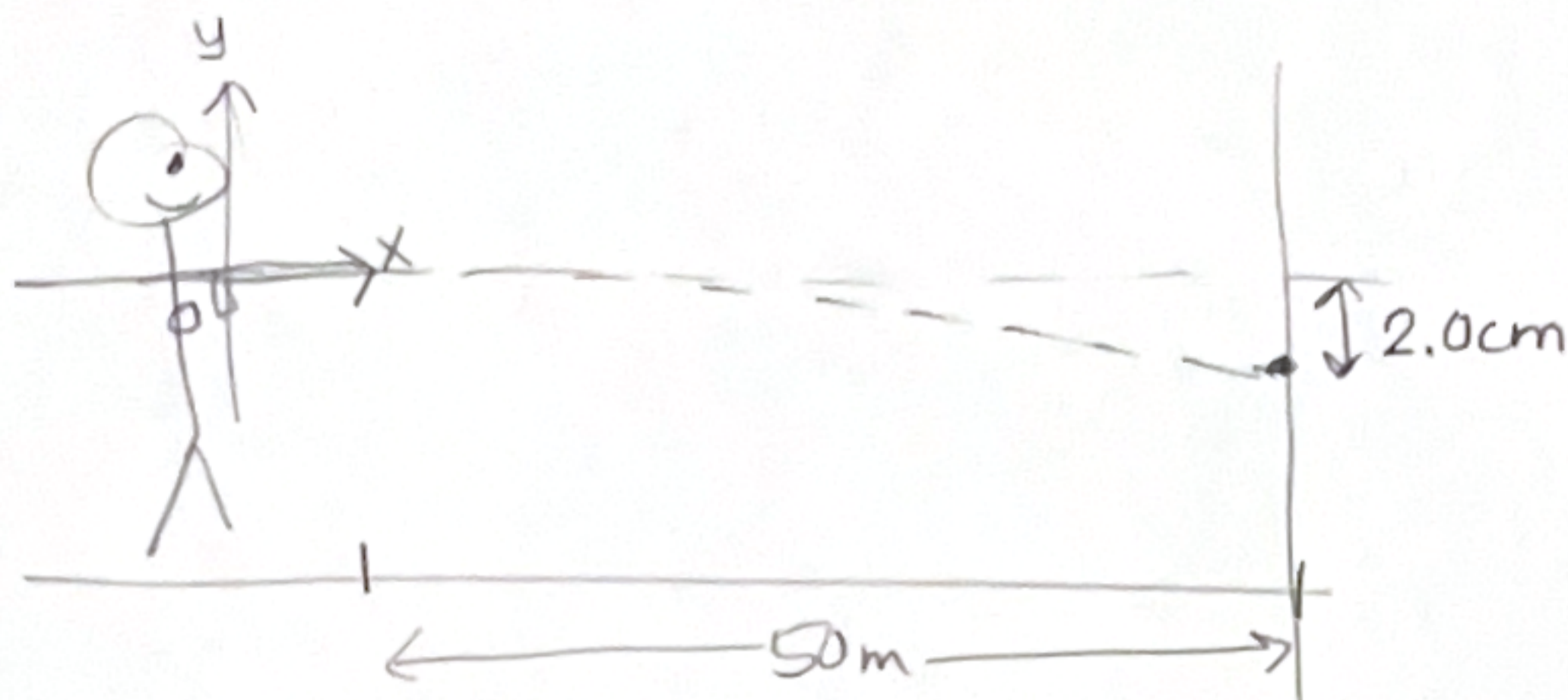


Ch 4 p. 106 #14, also find velocity before impact



a) Find flight time

Interval: $t=0$ to impact

HORIZ

$$\Delta x = 50 \text{ m}$$

$$v_x =$$

$$\Delta t =$$

VERT

$$\Delta y = -0.02 \text{ m}$$

$$v_{iy} = 0 \text{ (because } \vec{v}_i \text{ is all horizontal)}$$

$$v_{fy} =$$

$$a_y = -9.8 \text{ m/s}^2$$

$$\Delta t =$$

$$\Delta y = v_{iy} \Delta t + \frac{1}{2} a_y \Delta t^2$$

$$-0.02 \text{ m} = 0(\Delta t) + \frac{1}{2}(-9.8 \text{ m/s}^2) \Delta t^2$$

$$\boxed{0.064 \text{ s}} = \Delta t$$

b) Bullet's speed when leaving barrel

Interval: $t=0$ to impact

HORIZ

$$\Delta x =$$

$$v_x =$$

$$\Delta t =$$

VERT

$$\Delta y =$$

$$v_{iy} =$$

$$v_{fy} =$$

$$a_y =$$

$$\Delta t =$$

same list as

$$\Delta x = v_x \cdot \Delta t$$

$$50 \text{ m} = v_x (0.064 \text{ s})$$

$$v_x = \boxed{780 \text{ m/s}}$$