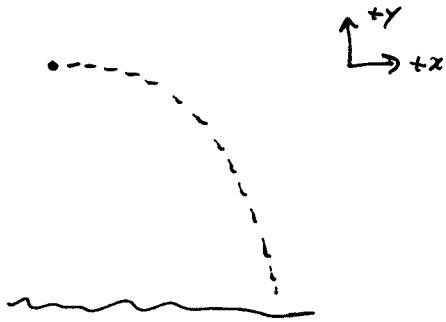


Exercise 7-12

(a)



$$v_{0x} = 3.00 \text{ m/s}$$

$$v_{0y} = 0$$

$$a_x = 0 \quad \therefore v_x = v_{0x} = 3.00 \text{ m/s}$$

$$a_y = -9.80 \text{ m/s}^2$$

$$y_0 = 0 \text{ m}$$

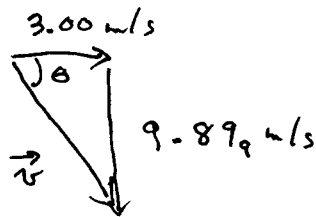
$$y = -5.00 \text{ m}$$

$$\text{Use } v_y^2 = v_{0y}^2 + 2a_y(y - y_0)$$

$$= 0^2 + 2(-9.80)(-5.00)$$

$$\therefore v_y = \pm 9.899 \text{ m/s}$$

Since v_y is down, $v_y = -9.899 \text{ m/s}$



$$v = \sqrt{(3.00)^2 + (9.899)^2} \text{ m/s}$$
$$= 10.3 \text{ m/s}$$

(b)

$$\theta = \tan^{-1} \left(\frac{9.899}{3.00} \right) = 73.1^\circ$$