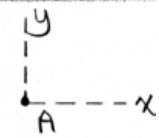


2/80 (a) $v_0 = 140 \text{ ft/sec}$ and $\theta = 8^\circ$:

$$x = x_0 + v_{x_0} t \text{ @ B: } 200 = 0 + (140 \cos 8^\circ) t$$

$$t = 1.443 \text{ sec}$$


$$y = y_0 + v_{y_0} t - \frac{1}{2} g t^2 \text{ @ B:}$$

$$-(7.5 - h) = 0 + 140 \sin 8^\circ (1.443) - \frac{1}{2} (32.2) (1.443)^2$$

$$h = 2.10 \text{ ft}$$

(b) $v_0 = 120 \text{ ft/sec}$ and $\theta = 12^\circ$:

$$x = x_0 + v_{x_0} t \text{ @ B: } 200 = 0 + (120 \cos 12^\circ) t$$

$$t = 1.704 \text{ sec}$$

$$y = y_0 + v_{y_0} t - \frac{1}{2} g t^2 \text{ @ B:}$$

$$-(7.5 - h) = 0 + (120 \sin 12^\circ) (1.704) - \frac{1}{2} (32.2) (1.704)^2$$

$$h = 3.27 \text{ ft}$$

(In baseball, the time of flight is critical;
low trajectories, even with one hop, are better.)