

x

$$v_i = 22.5 \text{ m/s}$$

$$a = 0 \text{ m/s}^2$$

$$d = ?$$

$$t = 1.43 \text{ s}$$

y

$$v_i = 0 \text{ m/s}$$

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

$$d = -10.0 \text{ m}$$

$$t = ?$$

a) $d = \cancel{v_i t} + \frac{1}{2} a t^2$

$$d = \frac{1}{2} a t^2$$

$$-10.0 = \frac{1}{2} (-9.8) t^2$$

$$t = 1.43 \text{ s}$$

b) $d = v_i t + \cancel{\frac{1}{2} a t^2}$

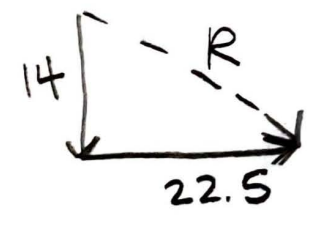
$$d = v_i t$$

$$d = (22.5)(1.43)$$

$$d = 32.1 \text{ m}$$

c) x

$$v_f = 22.5 \text{ m/s}$$



y

$$v_f = g t$$

$$= (9.8)(1.43)$$

$$v_f = 14 \text{ m/s}$$

$$(14)^2 + (22.5)^2 = R_v^2$$

$$R_v = 26.5 \text{ m/s}$$

2.

$$\text{range} = \frac{v_i^2 \cdot \sin(2\theta)}{g}$$

$$31.5111 = \frac{v_i^2 \sin(2 \cdot 40.0)}{9.8}$$



$$308.7 = \frac{9.85 v_i^2}{g}$$

$$a v_i = 17.7 \text{ m/s}$$

$$17.7 \sin(40) = y$$

$$y = 11.37$$

b) $\frac{y}{d} = ?$

$$d = ?$$

$$v_i = 11.37 \text{ m/s}$$

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

$$t = ?$$

$$v_f = 0 \text{ m/s}$$



$$v_f^2 = v_i^2 + 2ad$$

$$0 = (11.37)^2 + 2(-9.8)d$$

$$-129.3 = -19.6d$$

$$d = 6.60 \text{ m}$$