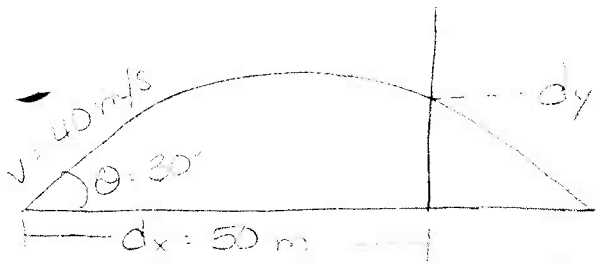
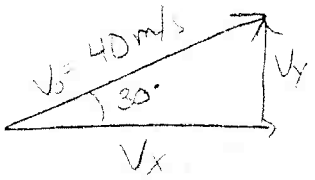
P #32

Ch. 3 - pg 76





$V_x = V \cdot \cos\theta$

$= (40\ m/s) \cdot \cos 30°$

$V_x = 34.6\ m/s$

$V_y = V \cdot \sin\theta$

$= (40\ m/s) \cdot \sin 30°$

$V_y = 20\ m/s$

$d_x = V_x \cdot t$ so $50\ m = (34.6\ m/s) \cdot t$

$t = 1.44\ sec$

$d_y = d_{oy} + V_{oy} \cdot t + \frac{1}{2} \cdot a \cdot t^2$

$= 3m + (20\ m/s)(1.44\ s) + \frac{1}{2}(-9.8\ m/s^2)(1.44\ s)^2$

$\boxed{d_y = 18.6\ m}$