P #24

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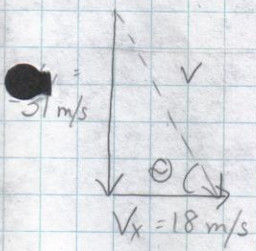
$d_y = 50.0\ m$
$V_{0y} = 0\ m/s$
$V_{0x} = 18.0\ m/s$

$d_y = \frac{1}{2} \cdot a \cdot t^2$ so $(50.0\ m) = \frac{1}{2} \cdot (9.8\ m/s^2) \cdot t^2$

$\boxed{t = 3.19\ sec}$

V_x remains constant so $V_x = 18.0\ m/s$

$V_y = V_{0y} + a \cdot t$
$= 0\ m/s + (-9.8\ m/s^2)(3.19\ s)$
$V_y = -31.3\ m/s$



$V = \sqrt{V_x^2 + V_y^2}$
$= \sqrt{(18\ m/s)^2 + (31.3\ m/s)^2}$

$\boxed{V = 36.1\ m/s}$

$\theta = \tan^{-1}\left(\frac{31.3}{18}\right)$

$\boxed{\theta = 60.1^\circ \text{ from the horizontal}}$