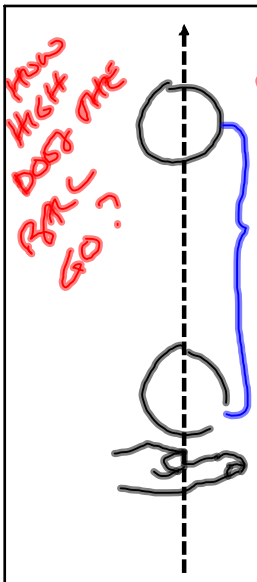


$t = ?$

$a = g = -9.81\ m/s^2$

$V_f = V_i + at$ ← $t = \frac{V_f - V_i}{a}$

$= \frac{-6}{-9.81} = .61s$

$a = \frac{V_f - V_i}{\Delta t} = \frac{\Delta V}{\Delta t}$

$3\frac{m}{s} = V_{AVG} = \frac{V_i + V_f}{2}$ } if "a" is constant

$\Delta d = h = V_{AVG}\, t = V_{AVG}\, \Delta t = 1.83m$

INITIAL ENERGY of BALL → $K.E. = \frac{1}{2}mV^2$

$= \frac{1}{2}m(36)$

$= 18m$ Joules

FINAL ENERGY of BALL → $P.E. = mg\Delta h$

$= m(9.81)\Delta h$

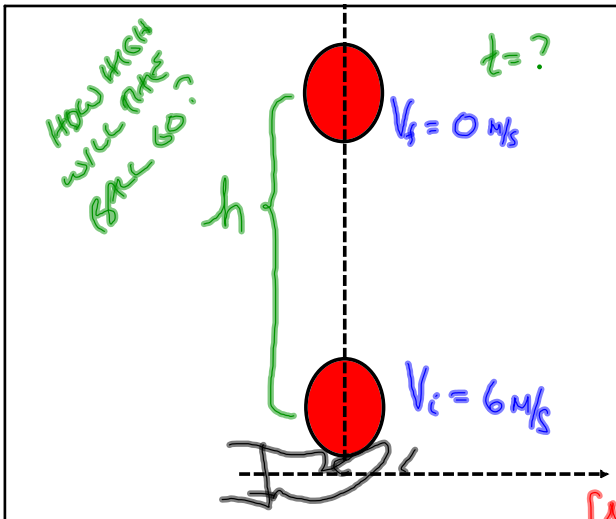
$= 9.81m\Delta h$

$E_i = E_f$

$[18m] = [9.81m\Delta h]$

$\frac{18}{9.81} = \frac{9.81(\Delta h)}{9.81}$

$\Delta h = 1.83$ meters



$a = g = -9.81 \frac{m}{s^2}$

$a = \frac{V_f - V_i}{\Delta t}$

$-9.81 = \frac{0-6}{\Delta t}$

$[\Delta t][-9.81] = -6$

$\frac{[-9.81]\Delta t}{-9.81} = \frac{-6}{-9.81}$

$\Delta t = 0.61 s$

$d = V_{ave}\,\Delta t = h$

$\frac{V_i + V_f}{2} = V_{ave} = 3$ m/s

$d = (3 \frac{m}{s})(\Delta t) = (3)(.61) = 1.83 m$

$E_i \Rightarrow K.E. = \frac{1}{2} m V^2 = [18m]$ Joules

$E_f \Rightarrow P.E. = [mg\Delta h]$ Joules

$[18m = mg\Delta h]$

$18 = 9\Delta h$

$[18 = 9.81(\Delta h)]$

$\Delta h = \left[\frac{18}{9.81}\right] = 1.83 m$