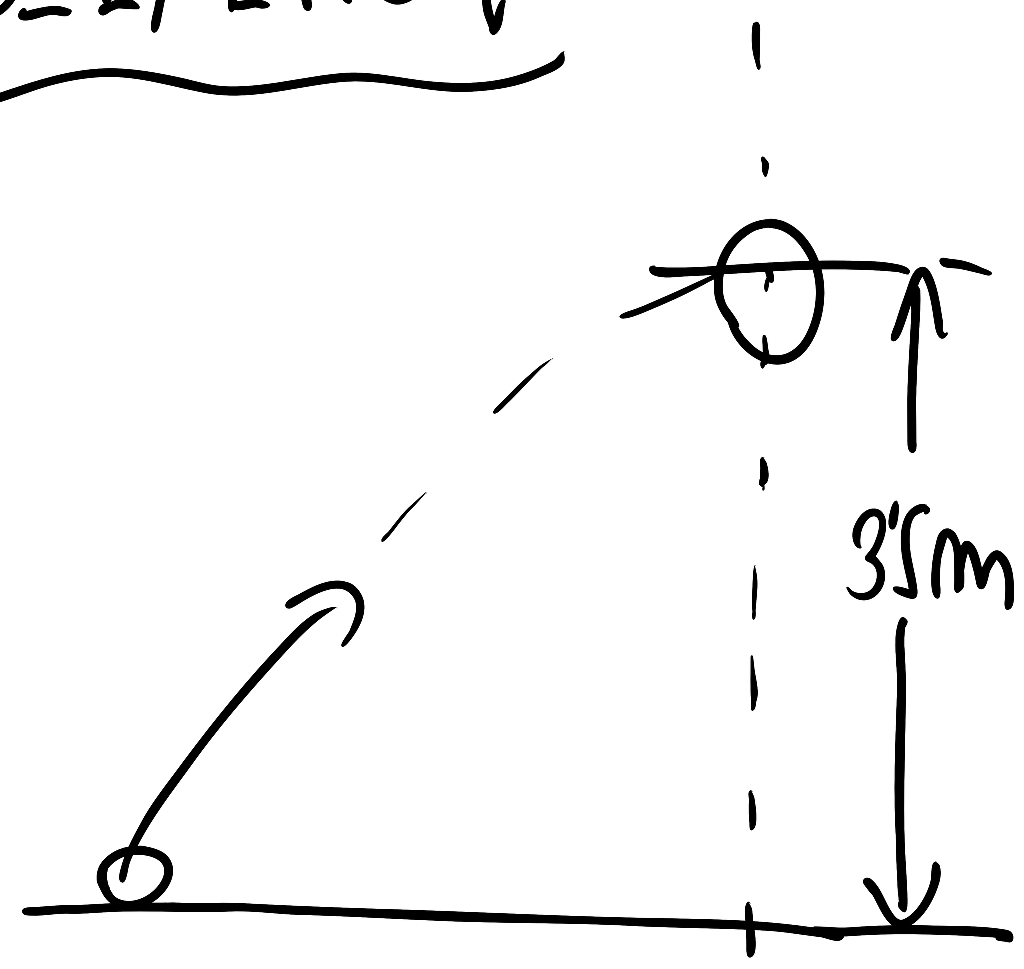
# 5_ENERGY



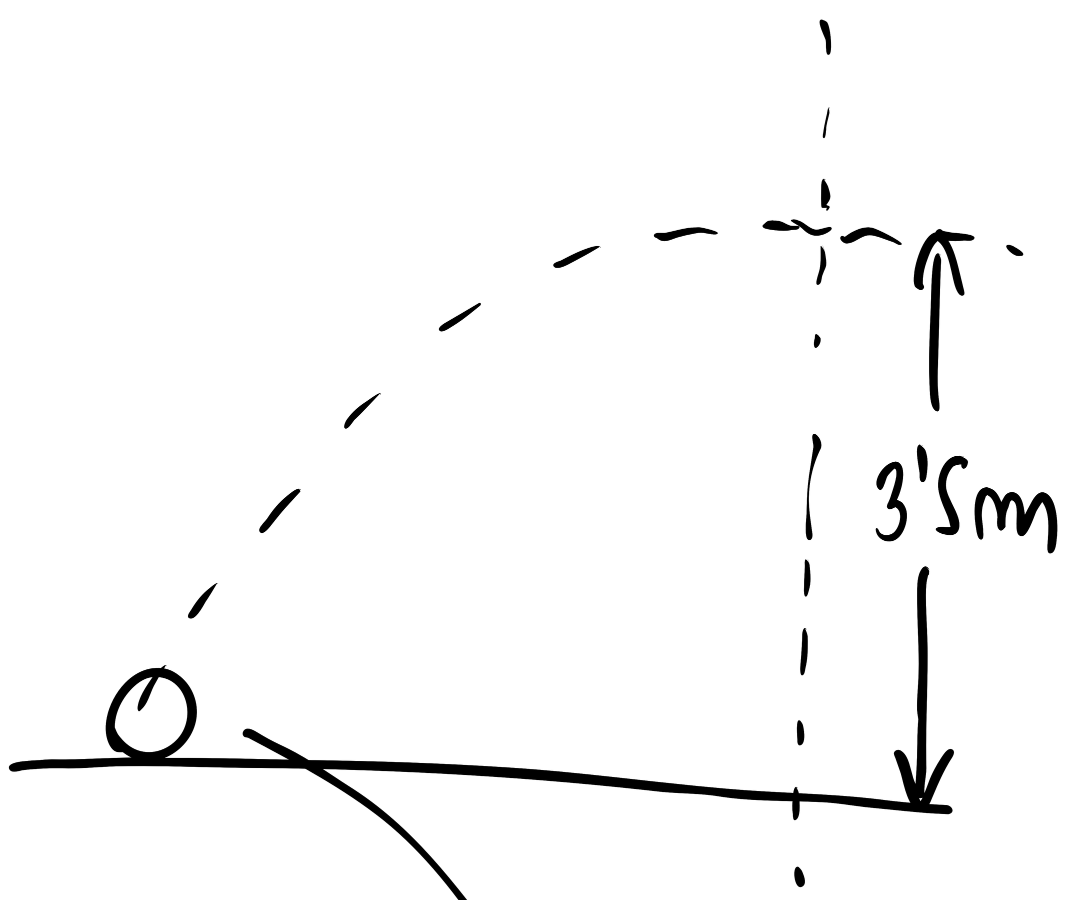

$E_p = m \cdot g \cdot h = (1'2\ kg)(9'8\ m/s^2)(3'5\ m)$

$\boxed{E_p = 41'16\ J}$

Al llegar a la canasta $v_y = 0 \Rightarrow E_c = 0$

$\boxed{E_c = 0\ J}$

$E_T = E_c + E_p = 41'16\ J$

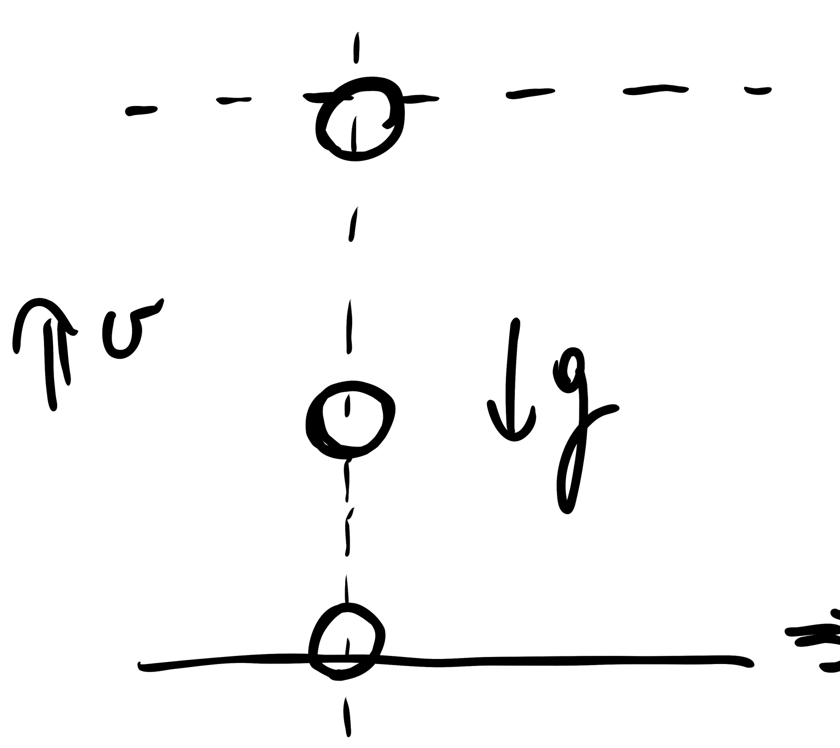



En este punto $E_p = m \cdot g \cdot \cancel{h}^{\,0} = 0 \Rightarrow E_p = 0$

$E_T = E_c + \cancel{E_p}^{\,0} = 41'16\ J \Rightarrow \boxed{E_c = 41'16\ J}$

$E_c = \frac{1}{2} m v^2 \Rightarrow v^2 = \frac{2 \cdot E_c}{m} \Rightarrow v = \sqrt{\frac{2 \cdot E_c}{m}} = \sqrt{\frac{2 \cdot 41'16\ J}{1'2\ kg}} = 8'28\ m/s$

## Comprobación de que esto es cierto con MRUA:




$\left\{ \begin{array}{l} v_f = 0 \\ y = 3'5\ m \end{array} \right.$

$\left\{ \begin{array}{l} v_i = ¿? \\ y = 0\ m \end{array} \right.$

M.R.U.A. $\left\{ \begin{array}{l} v = v_0 + a t \\ y = y_0 + v_0 t + \frac{1}{2} a t^2 \\ v^2 = v_0^2 + 2 a \cdot y \end{array} \right.$

$0^2 = v_0^2 + 2\left(-9'8\ m/s^2\right) \cdot (3'5\ m) \Rightarrow$

$v_0^2 = 2 \cdot (9'8\ m/s^2)(3'5\ m) = 68'6\ m^2/s^2 \Rightarrow$

$\Rightarrow v_0 = \sqrt{68'6\ \frac{m^2}{s^2}} = 8'28\ m/s$