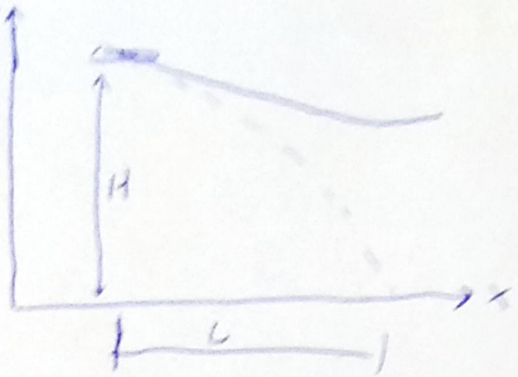
2.1



DATOS

$V_0 = 1100 \text{ km/h} = 305.5 \text{ m/s}$

$\alpha = 27°$

$L = 1500 \text{ m}$

$V_{ox} = V_0 \cos 27° = 272.24 \text{ m/s}$

$V_{oy} = V_0 \operatorname{sen} 27° = 138.71 \text{ m/s}$

calculo tiempo impacto $\boxed{t' = \frac{L}{V_{ox}} = \frac{1500 \text{ m}}{272.24 \text{ m/s}} = 5.5 \text{ s}}$

$y(t) = H + V_{oy} t + \frac{1}{2} a_y t^2$

$y(t') = 0 = H + V_{oy} t' - \frac{1}{2} g t'^2$

$\boxed{H = 138.71 \text{ m/s} \cdot (5.5 \text{ s}) + \frac{1}{2} 9.81 \text{ m/s}^2 \cdot (5.5 \text{ s})^2 = 911.13 \text{ m}}$

2.2

$V_x(t) = V_{ox} = 272.24 \text{ m/s}$

$V_y(t) = V_{oy} - g t = -138.71 \text{ m/s} - 9.8 \text{ m/s}^2 \cdot t$

$V_y(t') = -192.6 \text{ m/s}$

$K = \frac{1}{2} m V'^2 \qquad V' = \sqrt{V_x + V_y'} = \sqrt{(272.24 \text{ m/s})^2 + (-192.6 \text{ m/s})^2}$

$\boxed{V' = 333.48 \text{ m/s}}$

$K = \frac{1}{2} \cdot 56 \text{ kg} \left(333.48 \text{ m/s}\right)^2 = 3.113.800 \text{ J}$