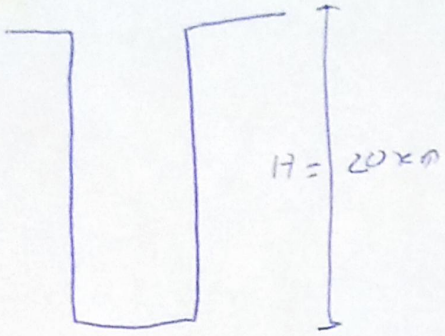
3.1

H 3



T.T.E $\quad W_{todas} = \Delta k$

$$m g_M \cdot H = \frac{1}{2} m V_f^2 - \frac{1}{2} m V_0^2$$

$$V_f = \sqrt{2 g_M H + V_0^2} = \sqrt{2 \cdot 0.079\ m/s^2 \cdot 20 \times 10^3\ m + (10\ m/s)^2}$$

$$V_f = 57\ m/s$$

Teor. impulso

$$\bar{F} \cdot \Delta t = \Delta P \Rightarrow \bar{F} = \frac{\Delta P}{\Delta t} = \frac{m \cdot V_f - 0}{0.1\ s} = \frac{65\ kg \cdot 57\ m/s}{0.1\ s}$$

$$\bar{F} = 24700\ N$$

3.2

$$\frac{G M_M m_P}{r^2} = m_P v^2 \Rightarrow v = \sqrt{\frac{G \cdot M_M}{r}}$$

pero no tengo r. lo calculo con el dato de g_M

$$m_P g_M = \frac{G \cdot M_M m_P}{r^2} \Rightarrow r = \sqrt{\frac{G \cdot M_M}{g_M}} = 2.3588 \times 10^5\ m$$

$$v = 136.5\ m/s$$