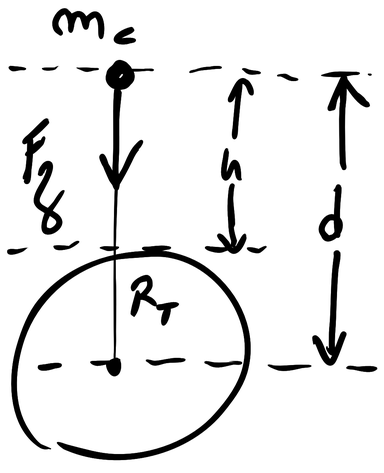
6º)- GRAVEDAD



$$F_g = G \cdot \frac{M_T \cdot m_c}{d^2} \quad ; \quad F = m_c \cdot a$$

(1) La aceleración causada por la fuerza de la gravedad se representa como "g" →

$$F_g = m_c \cdot a \overset{(1)}{=} m_c \cdot g$$

$$F_g = G \cdot \frac{M_T \cdot m_c}{d^2} = m_c \cdot g \quad \Rightarrow \quad G \cdot \frac{M_T}{d^2} = g$$

$$\Rightarrow G \cdot \frac{M_T}{(h+R_T)^2} = g \quad \Rightarrow \quad \underbrace{G \cdot M_T = g \cdot (h^2 + 2 \cdot h \cdot R_T + R_T^2)}_{(1)}$$

$$G \cdot M_T = g (h + R_T)^2$$

$$\frac{G \cdot M_T}{g} = (h + R_T)^2 \quad \Rightarrow \quad \sqrt{\frac{G \cdot M_T}{g}} = h + R_T \quad \Rightarrow$$

$$\Rightarrow h = \left(\sqrt{\frac{G \cdot M_T}{g}} \right) - R_T = \left[\sqrt{\frac{6'67 \cdot 10^{-11}\ N \cdot \frac{m^2}{kg^2} \cdot 6'0 \cdot 10^{24}\ kg}{5\ m/s^2}} \right] - 6'4 \cdot 10^6\ m$$

h (para que g sea igual a $5\ m/s^2$) $= 2'546 \cdot 10^6\ m \longrightarrow$ **$h = 2540\ km$**