



$$\Sigma \vec{F} = m \cdot \vec{a} \Rightarrow F = m_s \cdot a_c$$

$$m_s g_M = m_s a_c \Rightarrow g_M = a_c$$

$$F = G \frac{m_s m_M}{d^2}$$

$$m_s g_M = \frac{G m_s m_M}{d^2}$$

$$\Rightarrow g_M = a_c = \frac{G m_M}{d^2} \Rightarrow \frac{V^2}{R_M} = \frac{G \cdot m_M}{R_M^2}$$

$$V = \sqrt{G \frac{m_M}{R_M}}$$

$$V = 3498 \frac{m}{s}$$