$$m_2 > m_1$$

$$x_2 = x_1 \frac{m_1}{m_2}$$

$$\Omega^2 = \frac{G(m_1 + m_2)}{(x_1 + x_2)^3}$$

$$v^2 = \Omega^2 r^2$$

$$\Sigma F = 0$$

$$\frac{m_1 G}{R_1^2} + \frac{G(m_1 + m_2)}{(x_1 + x_2)^3}(x_1 - R_1) = \frac{m_2 G}{(x_1 - R_1 + x_2)^2}$$

$$\frac{m_1 G}{R_1^2} + \frac{G(m_1 + m_2)}{\left[x_1\left(1 + \frac{m_1}{m_2}\right)\right]^3}(x_1 - R_1) = \frac{m_2 G}{\left[x_1\left(1 + \frac{m_1}{m_2}\right) - R_1\right]^2}$$