



$$F_g = \frac{G m_1 m_2}{r^2}$$

$$\sum \vec{F}_x = -F_{3m} + F_m = 0$$

$$F_m = F_{3m}$$

$$F_m = F_{3m}$$

$$\frac{\cancel{GmM}}{(1-x)^2} = \frac{\cancel{G3mM}}{x^2}$$

$$\frac{1}{(1-x)^2} = \frac{3}{x^2}$$

$$x^2 = 3(1-x)^2$$

$$x^2 = 3(1-x)(1-x)$$

$$x^2 = 3(1-x)(1-x)$$

$$x^2 = 3(1-x-x+x^2)$$

$$x^2 = 3(1-2x+x^2)$$

$$x^2 = 3 - 6x + 3x^2$$

$$0 = 3 - 6x + 2x^2$$

$$x = 0.634 \text{ m}$$