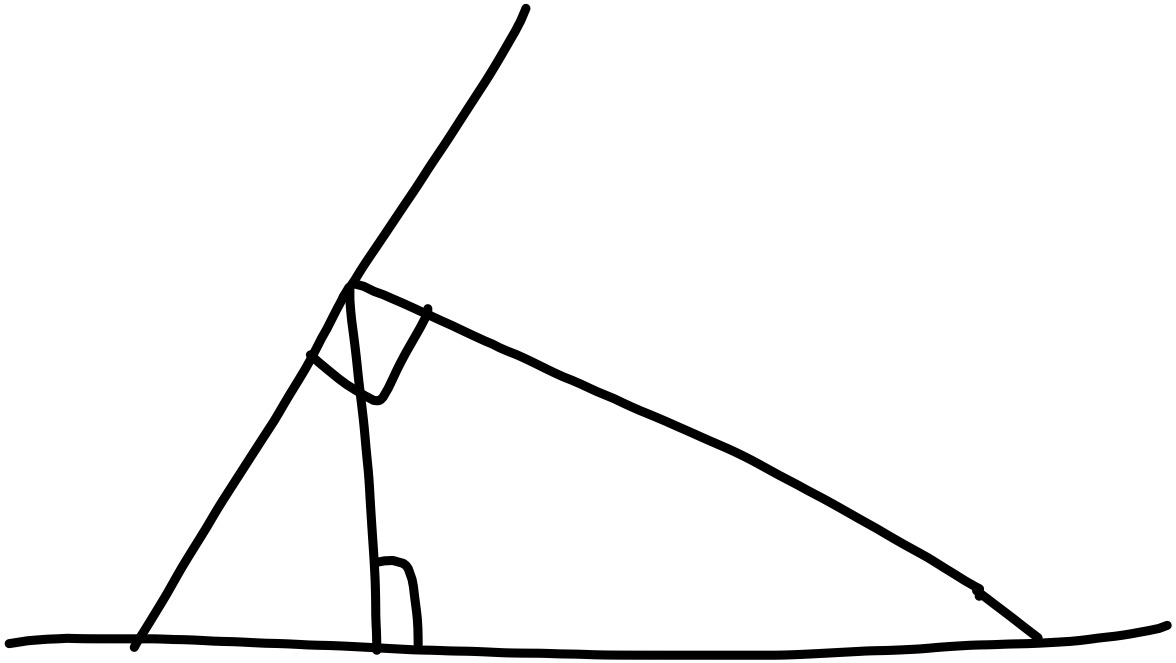

Gravity, again

$g = 9.81 \frac{m}{s^2}$ on Earth...

or $9.81 \frac{N}{kg}$

$$\frac{N}{kg} \rightarrow \frac{\frac{kg \cdot m}{s^2}}{kg}$$

$F = m\,g$

$N = kg \cdot \frac{m}{s^2}$

$$\frac{\frac{kg \cdot m}{s^2}}{kg} = \frac{kg \cdot m}{s^2} \cdot \frac{1}{kg} = \frac{m}{s^2}$$

Q.E.D.

Law of Universal Gravitation

6.67×10^{-11}

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

→ masses

→ distance between two objects*

↳ From center of mass

$$F_g \propto \frac{m_1 m_2}{r^2}$$

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

$$760.0 = \frac{(6.67 \times 10^{-11})(77.47) M_\oplus}{(6.37 \times 10^6)^2}$$

$$M_\oplus = 5.92 \times 10^{24} \text{ kg}$$

Units? $N = \dfrac{\boxed{G}(kg)(kg)}{m^2}$

$\dfrac{N \cdot m^2}{kg^2} = G$