

Example

What is the force between a 200 lb person [90 kg] and a 1000 lb rock [453.6 kg] at a distance of a) 1 meter, b) 2 meters, or c) 10 meters?

$$a) \quad F = \frac{(6.67 \times 10^{-11})(90 \text{ kg})(453.6 \text{ kg})}{(1 \text{ m})^2} = 2.72 \times 10^{-6} \text{ Newtons}$$

$$b) \quad F = \frac{(6.67 \times 10^{-11})(90 \text{ kg})(453.6 \text{ kg})}{(2 \text{ m})^2} = 6.81 \times 10^{-7} \text{ Newtons}$$

$$c) \quad F = \frac{2.72 \times 10^{-6} \text{ N}}{10^2} = 2.72 \times 10^{-8} \text{ Newtons}$$