

13.1: The Law of Gravitation

Of Newton's accomplishments, the discovery of the universal law of gravitation ranks as one of the greatest. Imagine two masses, M_1 and M_2 , separated by a distance r . The force has the magnitude

$$F = \frac{M_1 M_2 G}{r^2} \quad (13.1.1)$$

where $G = 6.67 \times 10^{-11} \text{ m}^3 \text{ kg}^{-1} \text{ s}^{-2}$ is the **universal gravitational constant**. The gravitational force is always attractive and it acts along the line of centers between the two masses

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