Two objects of equal mass, m, are separated by a distance d. Answer the following questions:
a) If the distance was doubled, what would happen to the force of attraction? Doubled Quadrupled No Change Cut by 1/4th Cut by 1/2
b) If the mass of the first object was doubled, what would happen to the force of attraction? Cut by 1/4th Cut by 1/2 Doubled No Change Quadrupled
c) If the mass of both objects was doubled, what would happen to the force of attraction? Cut by 1/4th Cut by 1/2 Quadrupled Doubled No Change
d) If the distance was cut in half, what would happen to the force of attraction?

Solution:

According to Newton's Law of universal gravitation:

$$\boldsymbol{F = G\frac{mM}{R^2}}$$

a) If the distance (*R*) was doubled, the force would be **Cut by 1/4th.**
b) If the mass of the first object *(m)* was doubled, the force would be **Doubled.**
c) If the mass of both objects *(m and M)* was doubled, the force would be **Quadrupled**.
d) If the distance *(R)* was cut in half, the force would be **Quadrupled.**