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**Use the following two equations to answer the following questions.**

1. Suppose that two point charges, each with a charge of +1 Coulomb are separated by a distance of 1 meter. Determine the magnitude of the electric force of repulsion between them.
2. Joann has rubbed a balloon with wool to give it a charge of -1.0 x 10 -6 C. She then acquires a plastic golf tube with a charge of +4.0 x 10-6 C localized at a given position. She holds the location of charge on the plastic golf tube a distance of 0.5 m above the balloon. Determine the electrical force of attraction between the golf tube and the balloon.
3. How far apart must two electrons be if the force between them is to be 2.0 x 10-12N?
4. Determine the electrical force of attraction between two balloons with separate charges of +3.5x10-8C and -2.9x10-8C when separated a distance of 0.65m.
5. The mass of two balls is 0.80 kg each and they are separated by a distance of 0.25 meters. Calculate the gravitational force between the two balls.
6. Calculate the gravitational force between the Earth and the moon. The mass of the Earth 5.9742 × 1024 kilograms and the mass of the moon is 7.36 × 1022 kilograms. The radius of the orbit is 382171 km.
7. Mars has a mass of 6.4 x 1023 kg and its moon Phobos has a mass of 9.6 x 1015 kg. The magnitude of the gravitational force between the two bodies is 4.6 x 1015 N. Calculate the radius of the orbit between Mars and Phobos.