

Answer on Question #61082, Physics / Electromagnetism

If the electrical force of repulsion between two 1-C charges is 10 N. How far apart are they?

Find: $r - ?$

Given:

$$|q_1| = |q_2| = 1C$$

$$F=10 \text{ N}$$

$$\epsilon_0=8.85 \times 10^{-12} \text{ F} \cdot \text{m}^{-1}$$

$$\epsilon=1$$

Solution:

Coulomb's law:

$$F = \frac{1}{4\pi\epsilon_0} \times \frac{|q_1||q_2|}{\epsilon r^2} \quad (1)$$

$$\text{Of (1)} \quad r = \frac{|q_1||q_2|}{4\pi\epsilon_0\epsilon F} \quad (2)$$

$$\text{Of (2)} \Rightarrow r = 0.03 \times 10^6$$

m Answer: $0.03 \times 10^6 \text{ m}$