Question #57961, Physics / Electromagnetism

A point charge of +3.0 x 10-7 coulomb is placed 2.0 x 10-2 m from a second point charge of +4.0 x 10-7 coulomb. The magnitude of the electrostatic force between the charges is _____.

Solution:

According to Coulomb's Law:

$F = \frac{kQ_1Q_2}{d^2}$;

$k = 9.0\times10^9$ N×m^2/C^2

$$F = \frac{9.0\times10^9 \times 3.0\times10^{-7} \times 4.0\times10^{-7}}{2.0\times10^{-2}} = 5.4\times10^{-2}\ \text{N}$$

Answer: the magnitude of the electrostatic force between the charges is 5.4×10^{-2} N.