Answer on Question #63066-Physics-Electromagnetism

A positive charge, q1, of 5 μC is 3 × 10–2 m west of a positive charge, q2, of 2 μC. What is the magnitude and direction of the electrical force, Fe, applied by q1 on q2?

Solution

The magnitude of the electrical force, Fe, applied by q1 on q2 is

$$F_e = k\frac{q_1 q_2}{r^2} = (9 \cdot 10^9)\frac{(5 \cdot 10^{-6})(2 \cdot 10^{-6})}{(3 \cdot 10^{-2})^2} = 100 \; N.$$

The direction is east of a positive charge, q2.