

**Answer on Question #75606-Physics-Other**

Three charges in a line. Calculate the magnitude of the net electrostatic force on a particle 3 due to the other 2 charges. The distance between q1 and q2 to q3 is 0.20m. (q1=-8.0 uC, q2= +3.0uC, and q3= -4.0 uC)

**Solution**

$$F_{13} = \frac{kq_1q_2}{(2d)^2} = \frac{(9 \cdot 10^9) (-8 \cdot 10^{-6})(-4 \cdot 10^{-6})}{4 \cdot 0.2^2} = 1.8 \text{ N.}$$

$$F_{23} = \frac{kq_1q_2}{(d)^2} = \frac{(9 \cdot 10^9) (3 \cdot 10^{-6})(-4 \cdot 10^{-6})}{1 \cdot 0.2^2} = -2.7 \text{ N.}$$

The magnitude of the net electrostatic force on a particle 3 due to the other 2 charges is

$$F = |F_{23} - F_{13}| = 2.7 - 1.8 = 0.90 \text{ N.}$$

**Answer: 0.90 N.**

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