

10. What is "k" in Coulombs law – state the actual value and the units.

11. One charge of 2.0 C is 1.5m away from a -3.0 C charge. Determine the force they exert on each other. Answer:  $2.4 \times 10^{10} \text{N}$

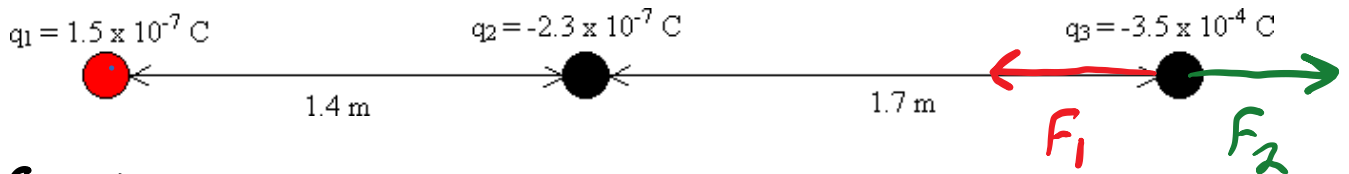
$$F = \frac{kQ_1Q_2}{r^2} = \frac{(9 \times 10^9)(2)(3)}{(1.5)^2} = 2.4 \times 10^{10} \text{N} \quad \left[ \text{ATTRACTED TOGETHER} \right]$$

12. The following three charges are arranged as shown. Determine the net force acting on the charge  $q_3$  (charge 3).

Answer: 0.2N to the right

(Watch your force directions)

Hint: total force = force caused by  $q_1$  + force caused by  $q_2$  (watch direction)



NET FORCE

$$\Sigma F = \vec{F}_1 + \vec{F}_2 \quad (\text{VECTORS})$$

$$F_1 = \frac{(9 \times 10^9)(1.5 \times 10^{-7})(3.5 \times 10^{-4})}{(3.1)^2} = 0.049 \text{N} \quad \leftarrow$$

1. Use the internet, and list 3 application of electrostatics we did not look at in class.

$$F_2 = \frac{(9 \times 10^9)(2.3 \times 10^{-7})(3.5 \times 10^{-4})}{(1.7)^2} = 0.25 \text{N} \quad \rightarrow$$

$$\Sigma F = \vec{F}_1 + \vec{F}_2 \quad 0.25 \text{N} - 0.049 \text{N} = \underline{\underline{0.2 \text{N}}} \quad \rightarrow$$