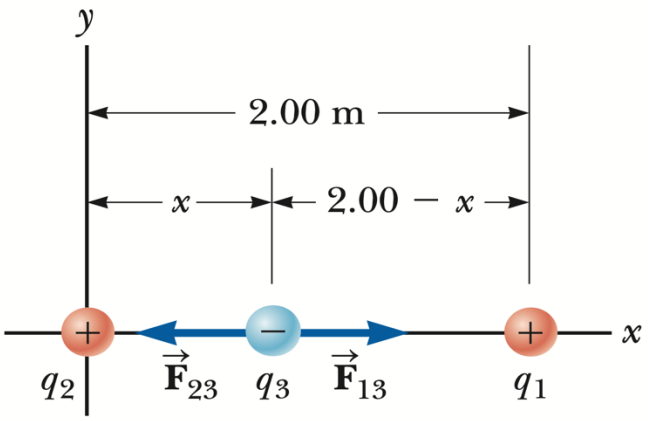
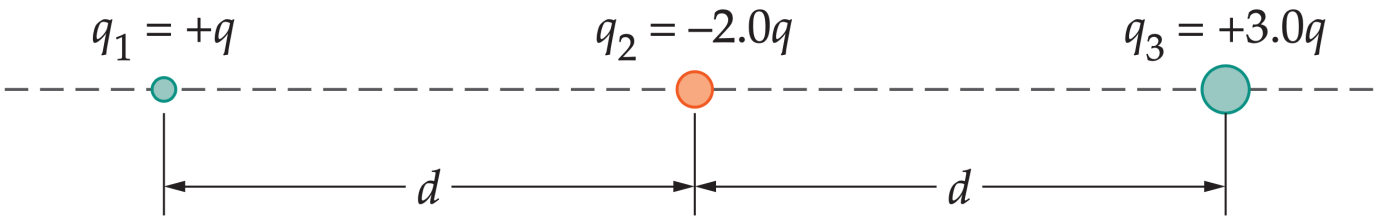
Three-point charges lie along the x axis as shown in Figure 23.9 The positive charge q_1=15.0 μC *is at* x=2.00 m, *the positive charge* q_2=6.00 μC *is at the origin, and the net force acting on q3 is zero. What is the x coordinate of q3?*

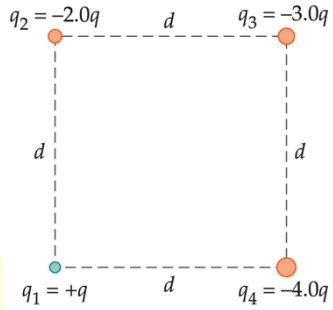


At what separation is the electrostatic force between a $+112\ \mu C$ *point charge and a* $+291\ \mu C$ *point charge equal in magnitude to 1.57 N?*

Given that $q = +12\ \mu C$ and $d = 19\ cm$, (a) find the direction and magnitude of the net electrostatic force exerted on the point charge q_2 in Figure 19–29. (b) How would your answers to part (a) change if the distance d were tripled?

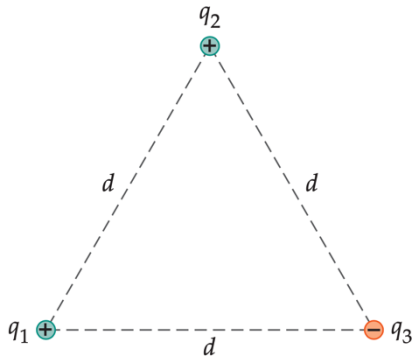


Find the direction and magnitude of the net electrostatic force exerted on the point charge q_2 in Figure 19–32. Let $q = +24\mu C$ and $d = 33$ cm.



Two point charges lie on the x axis. A charge of $+99\mu C$ is at the origin, and a charge of $-51\ \mu C$ is at $x = 100$ cm. (a) At what position x would a third charge q_3 be in equilibrium? (b) Does your answer to part (a) depend on whether q_3 is positive or negative? Explain.

The point charges in Figure 19–33 have the following values: $q_1 = +21\ \mu C, q_2 = +63\ \mu C, q_3 = -089\ \mu C$. *Given that the distance d in Figure 19–33 is 4.35 cm, find the direction and magnitude of the net electrostatic force exerted on the point charge* q_1.



Point charges, q_1 and q_2 , are placed on the x axis, with q_1 at x=0 And q_2 At x=d. A third point charge, +Q, is placed at $x = \frac{3d}{4}$. If the net electrostatic force experienced by the charge +Q is zero, how are q_1 and q_2 related?

H.W

1. *The attractive electrostatic force between the point charges* $+844 \times 10^{-6} C$ *and* Q *has a magnitude of 0.975 N when the separation between the charges is 1.31 m. Find the sign and magnitude of the charge Q.*

2. *When two identical ions are separated by a distance of* 62×10^{-10} *m, the electrostatic force each exerts on the other is* $54 \times 10^{-9} N$*. How many electrons are missing from each ion?*

(في هذه المسالة نقوم بحساب الشحنة Q عن طريق قانون كولوم ثم نستخدم القانون $N = \frac{Q}{e}$ حيث . N عدد الالكترونات ، e شحنة الالكترون $16 \times 10^{-19} C$ و Q الشحنة)