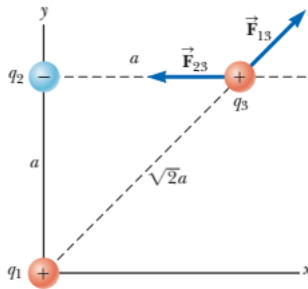


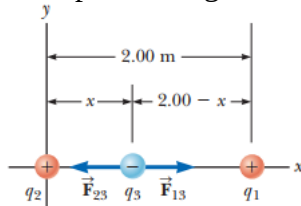
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Group Assignment on Physics for Remedial Students (2016)

1. Consider three-point charges located at the corners of a right triangle as shown in Figure below, where $q_1 = q_3 = 5.0 \times 10^{-6}\text{C}$, $q_2 = 2.0 \times 10^{-6}\text{C}$, and $a = 0.10\text{ m}$.



- A. Find the resultant force exerted on q_3 .
 - B. Determine the magnitude of force exerted on q_3 .
2. Four-point charges are at the corners of a square of side a as shown in Figure below.



- A. Determine the magnitude and direction of the electric field at the location of charge q .
 - B. What is the resultant force on q ?
3. Find the current in a long straight wire that would produce a magnetic field twice the strength of the Earth's field at a distance of 5.0 cm from the wire. $B_E = 5 \times 10^{-5}\text{ T}$.
 4. A conducting circular loop of radius 0.250 m is placed in the xy - plane in a uniform magnetic field of 0.360 T that points in the positive z -direction, the same direction as the normal to the plane.
 - A. Calculate the magnetic flux through the loop.
 - B. Suppose the loop is rotated clockwise around the x -axis, so the normal direction now points at a 45.0° angle with respect to the z -axis. Recalculate the magnetic flux through the loop.
 - C. What is the change in flux due to the rotation of the loop?
 5. Find the flux of Earth's magnetic field of magnitude $5.0 \times 10^{-5}\text{ T}$ through a square loop of area 20.0 cm^2
 - A. when the field is perpendicular to the plane of the loop,
 - B. when the field makes a 30.0° angle with the normal to the plane of the loop, and
 - C. when the field makes a 90.0° angle with the normal to the plane.