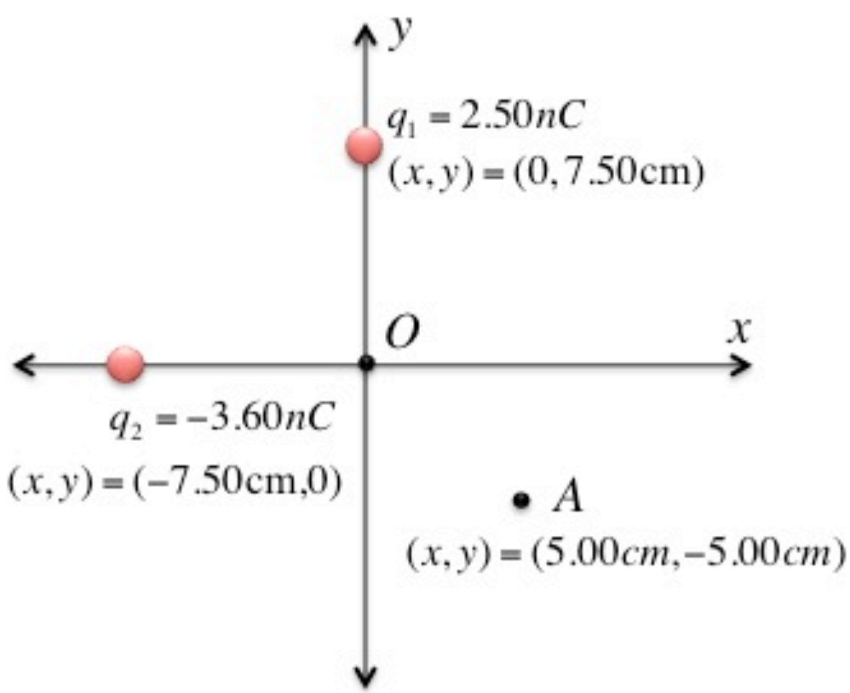
Suppose two charged particles are on the xy-plane. Charge $q_1 = 2.50nC$ is at $x = 0\ cm$ and $y = 7.50\ cm$, and charge $q_2 = -3.60nC$ is at $x = -7.50\ cm$ and $y = 0\ cm$ as shown below.

a) Find the electric potential at the origin, V_0.
b) Find the electric potential at point A, V_A, which is located at $x = 5.00\ cm$ and $y = -5.00\ cm$.
c) If a charged particle with $q = 2.40nC$ moves from the origin to point A while q_1 and q_2 are held fixed, calculate the change in the electric potential energy.

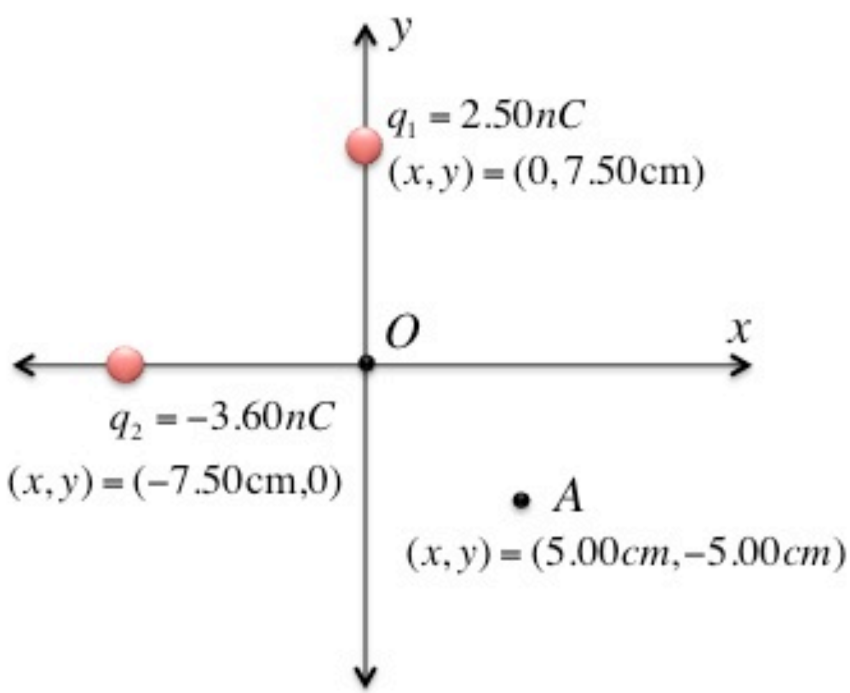


Suppose two charged particles are on the xy-plane. Charge $q_1 = 2.50nC$ is at $x = 0\ cm$ and $y = 7.50\ cm$, and charge $q_2 = -3.60nC$ is at $x = -7.50\ cm$ and $y = 0\ cm$ as shown below.

a) Find the electric potential at the origin, V_0. -132V.

b) Find the electric potential at point A, V_A, which is located at $x = 5.00\ cm$ and $y = -5.00\ cm$. -73.3V.

c) If a charged particle with $q = 2.40nC$ moves from the origin to point A while q_1 and q_2 are held fixed, calculate the change in the electric potential energy. $1.41\text{x}10^{-7}$J.



A solid spherical conductor with radius 12.0 cm has a net charge -2.50 nC.

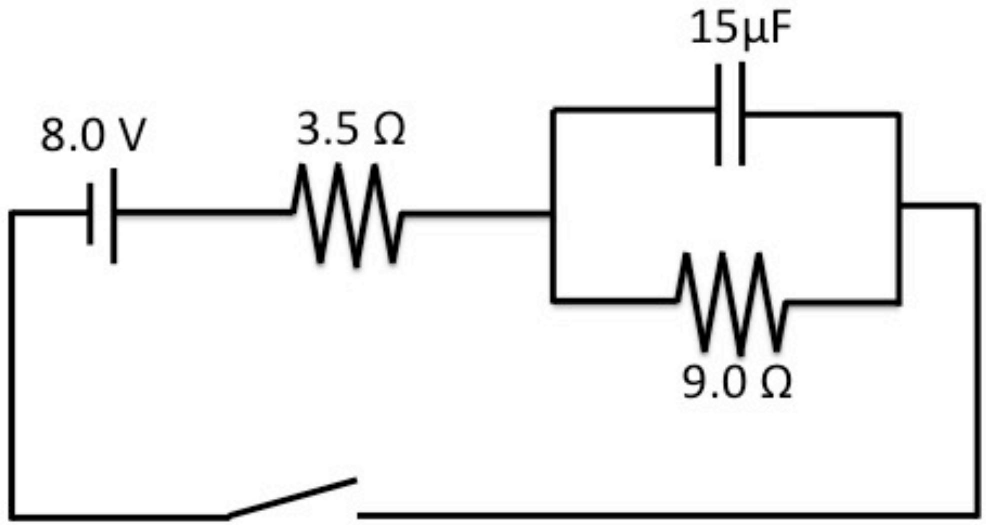
a) Determine the magnitude and the direction of the electric field at a point 5.0 cm from the center of the sphere.
b) Determine the magnitude and the direction of the electric field at a point 30.0cm from the center of the sphere.

A solid spherical conductor with radius 12.0 cm has a net charge -2.50 nC.

a) Determine the magnitude and the direction of the electric field at a point 5.0 cm from the center of the sphere. E=0.

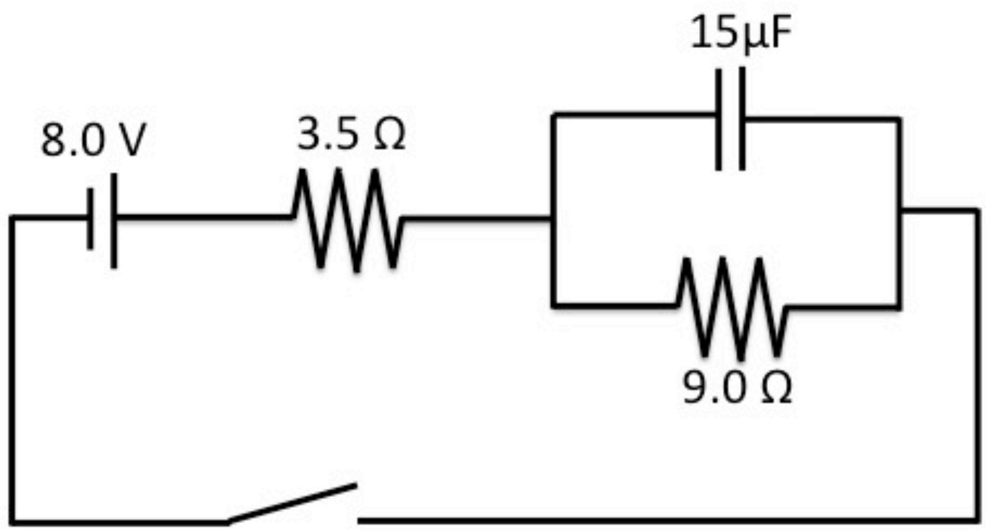
b) Determine the magnitude and the direction of the electric field at a point 30.0cm from the center of the sphere. 250 N/C, radially inward toward the center of the sphere.

Suppose a 15-μF capacitor is connected to two resistors and one ideal battery as shown below. Before the switch is closed, the capacitor has no charge.



a) What is the current through the 9.0Ω resistor immediately after the switch is closed?
b) What is the current through the 9.0Ω resistor a long time after the switch is closed?
c) What is the charge stored in the capacitor a long time after the switch is closed?

Suppose a 15-μF capacitor is connected to two resistors and one ideal battery as shown below. Before the switch is closed, the capacitor has no charge.



a) What is the current through the 9.0Ω resistor immediately after the switch is closed? I=0.
b) What is the current through the 9.0Ω resistor a long time after the switch is closed? I=0.64A.
c) What is the charge stored in the capacitor a long time after the switch is closed? 8.6×10^{-5}C.