Name_____

Phys 2020 (NSCC), Spring 2008
Problem Set #1

1. How many electrons do we need to get a total charge of $-1.0\,\mu$C?

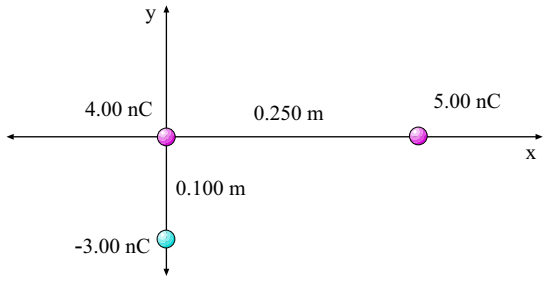
2. A charge of 2.6×10^{-9} C is located 1.8 m from a charge of -1.8×10^{-9} C. Find the electrostatic force exerted by one charge on the other.

3. In a vacuum, two particles with charges of $5.5\,\mu$C experience a repulsive force of 4.0 N. Find the distance between the two charges.

4. Two $6.0\,\mu$C charges are placed on the x axis, one at $x = 0.0$ cm and the other at $x = 5.0$ cm. A $3.0\,\mu$C charge is placed on the x axis at $x = 2.0$ cm.

What is the the magnitude of the net force on the $3.0\,\mu$C charge?

5. Three charges are arranged as shown at the right. Find the *magnitudes* of the forces which the other two charges (individually) exert on the charge at the origin.



6. For Problem 5, find the magnitude and direction of the net force on the charge at the origin.

7. An electron is accelerated by a constant electric field of magnitude 300 N/C. Find the the acceleration of the electron.

8. For the electron in problem 7, find the electron's speed after 1.00×10^{-8} s, assuming it starts from rest.