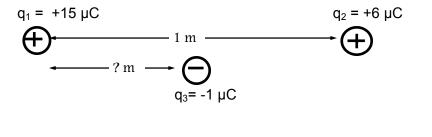
Per Name

HW 3.2 E-fields

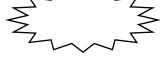
- 1. Find the magnitude (size) of the E-field 1 mm from the nucleus of a uranium atom (atomic # 92).
- 2. The electric **force** on a point charge of 5 E –9 C at some point is 3.8 E –3 N. What is the magnitude (size) of the E-field at this location?
- 3. The magnitude of the E-field at a certain location is 500 N / C and the field is directed east to west. Find the magnitude and direction of the force acting on a proton placed at this point.
- 4. Find the magnitude and direction of the E-field at a distance 10 cm from an electron.
- 5. The E-field at a distance of 0.8 meters from a certain charge is found to have a magnitude of 200 N / C. What is the magnitude of the charge which created the E-field?
- 6. What is the magnitude of the E-field that will balance the weight of an electron?
- 7. Two charges, q_1 and q_2 , lie 1 meter apart along the x axis as in the figure below. How far from q_1 should q_3 , having a charge of -1 μ C, be placed so that the resultant electric **force** on q_3 is zero?













- 8. What is the magnitude (size) and direction of the E-field 3 nanometers (nm) away from an Oxygen (+8e; mass 16 amu) nucleus? Draw the E-Field.
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9. What is the magnitude (size) and direction of the force placed on a electron that is 3 nm to the right of the Oxygen nucleus in problem 8 above?

10. How large of a an electric field would be needed to balance the **WEIGHT** of the Oxygen nucleus?

11. The E-field at a distance of 8 nanometers from a certain charge is found to have a magnitude of 5.0 E 12 N/C. What is the magnitude of the charge which created the E-field?

12. Draw the E-field for each of the following charges:



