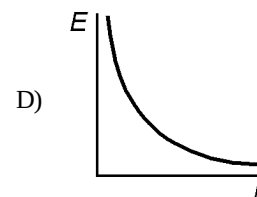
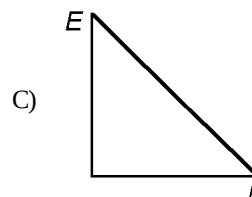
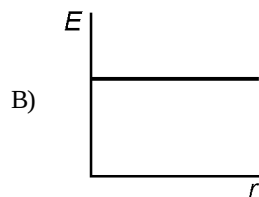
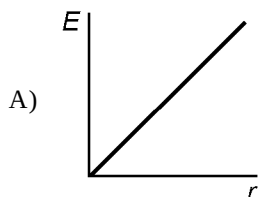


Name: _____

Electric Field Post-Lab Questions

- 1) How much work is required to move a single electron through a potential difference of 100. volts?
- 2) How much work is done in moving 5.0 coulombs of charge against a potential difference of 12 volts?
- 3) Two oppositely charged parallel metal plates, 1.00 centimeter apart, exert a force with a magnitude of 3.60×10^{-15} newton on an electron placed between the plates. Calculate the magnitude of the electric field strength between the plates. [Show all work, including the equation and substitution with units.]
- 4) Which graph *best* represents the relationship between the magnitude of the electric field strength, E , around a point charge and the distance, r , from the point charge?



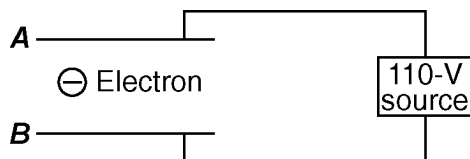
- 5) The centers of two small charged particles are separated by a distance of 1.2×10^{-4} meter. The charges on the particles are $+8.0 \times 10^{-19}$ coulomb and $+4.8 \times 10^{-19}$ coulomb, respectively.

On the diagram provided below, draw *at least* four electric field lines in the region between the two positively charged particles.

$$8.0 \times 10^{-19} \text{ C } \oplus$$

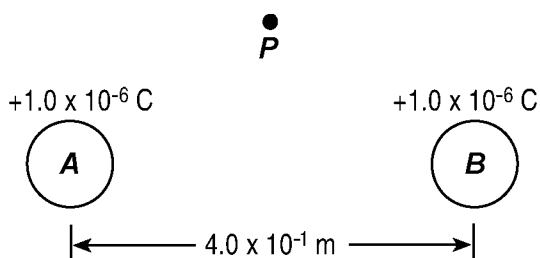
$$\oplus 4.8 \times 10^{-19} \text{ C}$$

- 6) An electron is located in the electric field between two parallel metal plates as shown in the diagram below.



If the electron is attracted to plate A, then plate A is charged

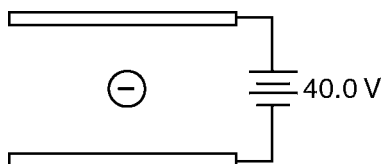
- A) positively, and the electric field is directed from plate A toward plate B
 B) positively, and the electric field is directed from plate B toward plate A
 C) negatively, and the electric field is directed from plate B toward plate A
 D) negatively, and the electric field is directed from plate A toward plate B
- 7) Two small metallic spheres, A and B, are separated by a distance of 4.0×10^{-1} meter, as shown. The charge on each sphere is $+1.0 \times 10^{-6}$ coulomb. Point P is located near the spheres.



Which arrow *best* represents the direction of the resultant electric field at point P due to the charges on spheres A and B shown?

- A)  B)  C)  D) 

- 8) The diagram below represents an electron within an electric field between two parallel plates that are charged with a potential difference of 40.0 volts.



If the magnitude of the electric force on the electron is 2.00×10^{-15} newton, what is the magnitude of the electric field strength between the charged plates?

- A) 2.00×10^{16} N/C B) 2.00×10^{-14} N/C C) 1.25×10^4 N/C D) 3.20×10^{-34} N/C
- 9) Two small identical metal spheres, A and B, on insulated stands, are each given a charge of $+2.0 \times 10^{-6}$ coulomb. The distance between the spheres is 2.0×10^{-1} meter. Calculate the magnitude of the electrostatic force that the charge on sphere A exerts on the charge on sphere B. [Show all work, including the equation and substitution with units.]