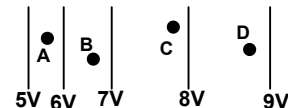# Physics 112
Quiz #8
September 25, 2000

Name: _____

1. A positive charge is fixed at the origin. Which of these would have the largest potential energy when it is the only other charge in the neighborhood of the origin?

   A. a 0.5-C charge 2 m from the origin
   B. a 2-C charge 3 m from the origin
   C. a 4-C charge 5 m from the origin
   D. a 5-C charge 8 m from the origin
   E. a 6-C charge 12 m from the origin
   F. They all would have the same potential energy.

2. Two parallel metal plates are charged by connecting them to a battery; the plates are 6 m apart. The **left-side** plate is connected to the positive terminal. The following charges are held at rest at the positions indicated, and then released. Which one will have the largest kinetic energy when it strikes the right-hand plate?

   A. a 1-C charge 3 m from the left-side plate
   B. a 1-C charge 4 m from the left-side plate
   C. a 2-C charge 4 m from the left-side plate
   D. a 3-C charge 4 m from the left-side plate
   E. a 3-C charge 5 m from the left side plate
   F. a 5-C charge 5 m from the left-side plate

3. Several equipotential lines are shown, with potential values indicated. Where should you place a proton so that it would experience the largest magnitude of electrical force?

   A. Point A
   B. Point B
   C. Point C
   D. Point D
   E. The force is the same at all four points.

4. Two parallel plates are connected to a battery (one plate to the positive terminal, the other plate to the negative terminal). The plates are separated by a distance d. The battery has a potential difference of ΔV between its terminals. The electric field between the plates has magnitude E. If the plates are now pushed in to separation distance $d/2$, disconnected from the old battery, and connected instead to a battery with potential difference $2\Delta V$, what will happen to the electric field between the plates?

   A. increase to $4E$.
   B. increase to $2E$.
   C. no change, stays at E.
   D. decrease to $E/2$.
   E. decrease to $E/4$.