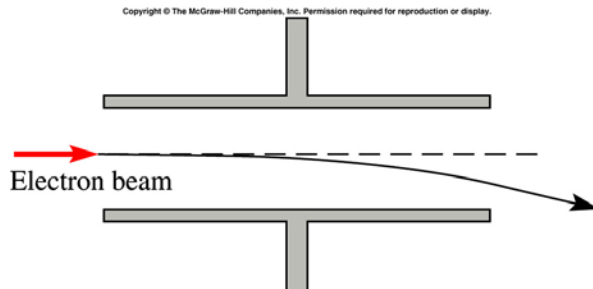


Quiz #4: Electric Potential

Problem 1 (1 point)

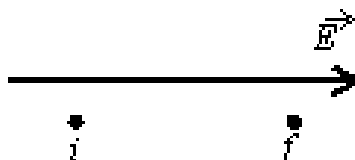
A beam of electrons is deflected as it moves between oppositely charged parallel plates. Which plate is at the higher potential?



- a) The upper plate.
- b) The lower plate.
- c) They are at the same potential.

Problem 2 (1 point)

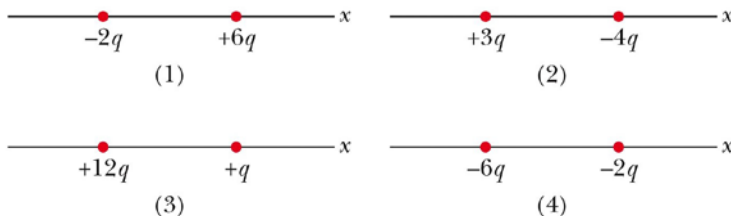
An electron moves from point *i* to point *f*, in the direction of a uniform electric field. During this placement:



- a) the work done by the field is positive and the potential energy of the electron-field system increases
- b) the work done by the field is negative and the potential energy of the electron-field system increases
- c) the work done by the field is positive and the potential energy of the electron-field system decreases
- d) the work done by the field is negative and the potential energy of the electron-field system decreases
- e) the work done by the field is positive and the potential energy of the electron-field system does not change

Problem 3 (3 points)

The figure below shows four pairs of charged particles. For each pair, let $V = 0$ at infinity and consider V_{net} at points on the x axis. For which pairs is there a point at which $V_{\text{net}} = 0$ (a) between the particles and (b) to the right of the particles? (c) Rank the pairs according to their electric potential energy (that is, the energy of the two-particle system), greatest (most positive) first.



- a)
- b)
- c)

Problem 4 (5 points)

In the figure below, what is the net electric potential at the origin (assuming $V = 0$ at infinity) due to the circular arc of charge $+Q$ (whose center of curvature is at the origin) and the two particles of charges $+4Q$ and $-2Q$? Let $Q = 8.0 \mu\text{C}$ and $R = 1.50 \text{ m}$.

