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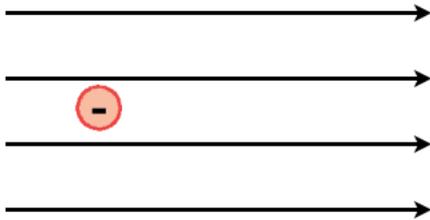
Student Number:

Physics Pre-reading - Potentials

For Monday look at the summary page of chapter 26. The important parts are the torque on a dipole and the electric field configurations under the applications section. You may want to read the section about motion of a charge and dipole in a field, but we'll talk about it in class. These will be addressed in the homework.

The following questions are based on content from Knight 3rd Edition chapters 28.1, 28.3, 28.4, 28.6, 28.7, 29.1, 29.3. The purpose of the following questions is to guide you towards understanding electric potential energy and the electric potential.

- 1) A charge $q = -2 \text{ nC}$ sits in a uniform electric field of strength $E = 2 \text{ N/C}$, as shown on the figure. How much work is required to move it 2 cm to the right?



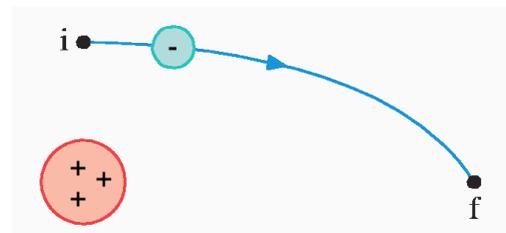
- 2) An electron moves along a trajectory from i to f.

a) Does the electric potential energy decrease, increase, or stay the same?

b) Does the electric potential decrease, increase, or stay the same?

c) Is the electron's speed greater, less than, or the same?

d) What about the problem changes if a proton were to move from point i to point f?

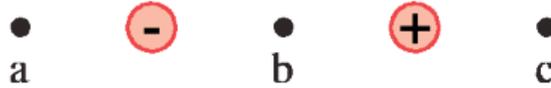


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3) The figure shows three points in the vicinity of two point charges. The charges have equal magnitudes. Rank, in order, the most positive to most negative.

a)



b)



4) Ziggy the Piggy sits in a uniform electric field of strength $E = 2 \text{ N/C}$, as shown on the figure. What is the change in electric potential from where Ziggy is now to a point 2 cm to the right of him? Draw and label a couple of equipotentials on the figure below.

