Name: _____ DISC: _____ Score: _____ / 20

Instructions:

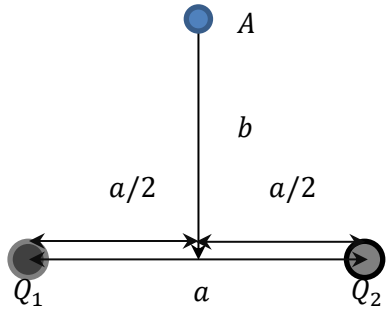
- Do your own work.
- Answer the questions below in the space provided.
- Make sure you show all your work and any equations that you use.
- Please place a box around your answers.
- Remember to give the correct units with all numerical answers

Q1	Q2	Q3	Q4
5	10	5	5

1. How would you explain the difference between the ***electric potential energy*** and the ***electric potential***? Are these quantities vectors or scalars?

Definitions: 3 pts.
Vector or Scalar: 2 pts

2. Consider the following situation (Q_1, Q_2 are fixed):



a	b	Q_1	Q_2	k	ELECTRIC POTENTIAL	WORK
$3\ m$	$2\ m$	$+4.0\ \mu C$	$-2.5\ \mu C$	$9 \times 10^9 N\ m^2/C^2$	$V(r) = \frac{kq}{r}$	$W = Vq$

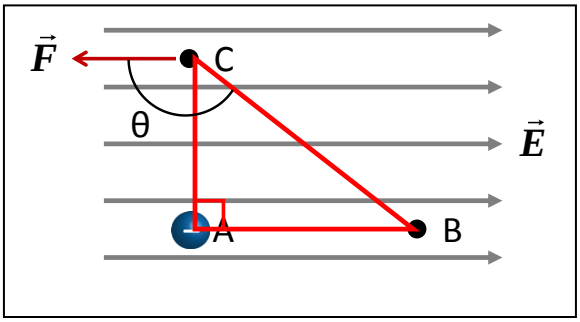
a. Using the information in the table, find the electric potential at the point A.

Potential (5 pts):

b. How much work do you have to do to bring a charge $q = 1.5\ \mu C$ from far away to the point A?

Work (5 pts):

3. Consider the charged particle and uniform electric field shown in the figure. The particle travles from point **A** to point **C** to point **B**. ($W = F\Delta r \cos\theta$)



a. In which step(s) does the *electric force* do work?

Steps (2 pts):

b. How does the work done by the *electric force* change if the particle travels from point **A** to point **B** *without* traveling to point **C**? Explain your reasoning.

Change (1 pts):
Explanation (2 pts):

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