Name: _____   DISC: _____   Score: _____ / 20
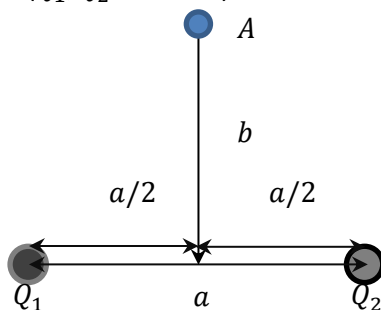
Instructions:
- Do your own work.
- Answer the questions below in the space provided.
- Make sure you show all your work and any equations that you use.
- Please place a box around your answers.
- Remember to give the correct units with all numerical answers

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
$5\,m$	$3\,m$	$+6.0\,\mu C$	$-3.5\,\mu C$	$9 \times 10^9 N\,m^2/C^2$	$V(r) = \dfrac{kq}{r}$	$W = Vq$

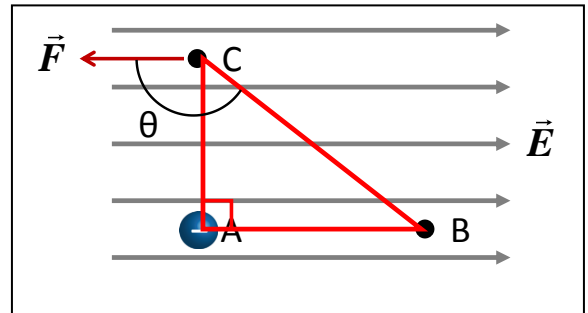a. Using the information in the table, find the electric potential at the point A.

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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