

This print-out should have 3 questions. Multiple-choice questions may continue on the next column or page – find all choices before answering. The due time is Central time.

001 (part 1 of 1) 10 points

You have a potential difference of 6 V.

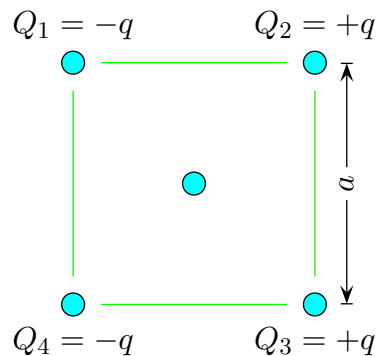
How much work is done to transfer 0.19 C of charge through it? Answer in units of J.

002 (part 1 of 1) 10 points

Through what potential difference would an electron need to be accelerated for it to achieve a speed of 6 % of the speed of light (2.99792×10^8 m/s), starting from rest? Answer in units of V.

003 (part 1 of 1) 10 points

Four charges are placed at the corners of a square, where q is positive ($q > 0$). There is no charge in the center of the square.



The magnitude of the total electrostatic energy of the system is given by

1. $U = 2 \frac{k_e q^2}{a^2}.$

2. $U = \sqrt{2} \frac{k_e q^2}{a^2}.$

3. $U = 4\sqrt{2} \frac{k_e q^2}{a^2}.$

4. $U = 4\sqrt{2} \frac{k_e q^2}{a}.$

5. $U = \sqrt{2} \frac{k_e q^2}{a}.$

6. $U = 8 \frac{k_e q^2}{a^2}.$

7. $U = 4 \frac{k_e q^2}{a^2}.$

8. $U = 4 \frac{k_e q^2}{a}.$

9. $U = 2\sqrt{2} \frac{k_e q^2}{a^2}.$

10. $U = 2 \frac{k_e q^2}{a}.$