

Announcements

- Bring your toy kits to problem session tomorrow.
- The Assigned Problems for tomorrow's problem session are completely wrong on the paper handout we gave you.

The correct problems are available online via the Handouts page or the Lecture 4 calendar page.

- Grab flash cards up front if you don't have any!

Physics & Astronomy Seminar

Studying Few- and Many-Particle Quantum Physics with Rydberg Atoms



Matthew Krebs

Pennsylvania State University

Olin 268. Thursday, January 29 at 12:00

Pizza provided. Bring your own water bottle.

Lecture 4 — Concept Test 1

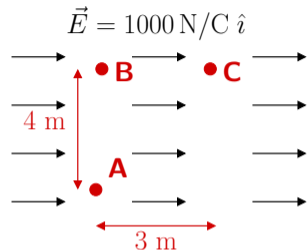
What is the potential energy difference ΔU when moving a $+0.1\text{ C}$ charge from ...

(a) From point A to point B?

1. 0 J
2. 300 J
3. -300 J
4. 400 J
5. -400 J

(b) From point B to point C?

1. 0 J
2. 300 J
3. -300 J
4. 400 J
5. -400 J

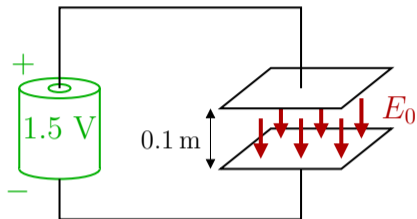


(c) From point A to point C?

1. 0 J
2. -300 J
3. -400 J
4. -500 J
5. -700 J

Lecture 4 — Concept Test 2

A 1.5 V battery is attached to parallel conducting plates separated by distance of 10 cm. This creates a downward electric field of strength E_0 .



(a) What is E_0 ?

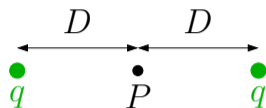
1. 0 N/C 2. 0.15 N/C 3. 1.5 N/C 4. 15 N/C

(b) The separation between the plates is doubled. What is the new ΔV between the plates?

1. 0 V 2. 0.75 V 3. 1.5 V 4. 3.0 V

Lecture 4 — Concept Test 3

What is the potential at a point half-way between two equal charges, as in the sketch?

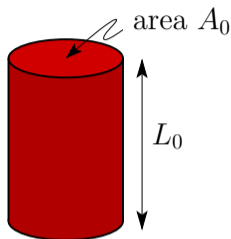


1. 0
2. kq/D
3. $-kq/D$
4. $2kq/D$
5. $-2kq/D$
6. There's not enough information to answer this

Lecture 4 — Concept Test 4

Assume that a nichrome wire with length L_0 and cross-sectional area A_0 has a resistance R_0 . Stretch it out, increasing its length to $2L_0$ and cutting its cross-sectional area to $A_0/2$ (this keeps the total amount of nichrome constant).

What is the resistance of the stretched wire?



1. 0
2. $R_0/4$
3. $R_0/2$
4. R_0
5. $2R_0$
6. $4R_0$