Web**Assign**
CH19-HW03-FALL2010 (Homework)

Yinglai Wang
PHYS 272-FALL 2012, Fall 2012
Instructor: Virendra Saxena

Current Score : 12 / 12   **Due :** Friday, October 19 2012 11:59 PM EDT

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1. 2/2 points | Previous Answers   MI3 19.9.X.056

Why does the brightness of a bulb not change noticeably when you use longer copper wires to connect it to the battery?

☑ very little energy is dissipated in the thick connecting wires

☑ the electric field in connecting wires is very small, so emf $\approx E_{bulb} L_{bulb}$

☐ electric field in the connecting wires is zero, so emf $= E_{bulb} L_{bulb}$

☐ current in the connecting wires is smaller than current in the bulb

☐ all the current is used up in the bulb, so the connecting wires don't matter

✔

- *Read the eBook*
- Section 19.9

2. 5/5 points | [Previous Answers](#)

A Nichrome wire 75 cm long and 0.25 mm in diameter is connected to a 1.5 volt flashlight battery. What is the electric field inside the wire?

| 2 | ✅ | V/m |

The Nichrome wire is replaced by a wire of the same length and diameter, and same mobile electron density but with electron mobility 3 times as large as that of Nichrome. Now what is the electric field inside the wire?

| 2 | ✅ | V/m |

The electron current in the first circuit (Nichrome) is i_1. The electron current in the second circuit (wire with higher mobility) is i_2. Which of the following statements is true?

- 🔘 $i_2 > i_1$

- ⚪ Not enough information is given to compare the two currents.

- ⚪ $i_2 = i_1$

- ⚪ $i_2 < i_1$

✅
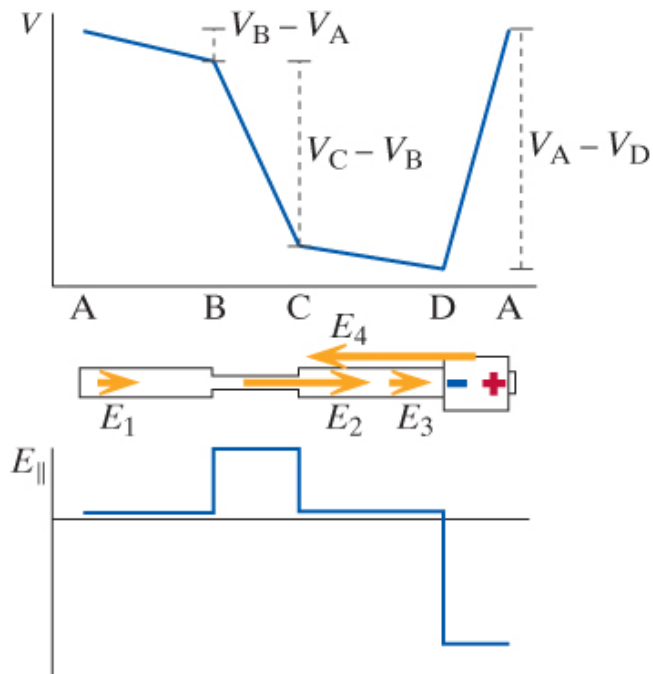
- *Read the eBook*
- [Section 19.9](#)

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3. 2/2 points | <u>Previous Answers</u>   MI3 19.9.X.062

What would be the potential difference V_C - V_B across the thin resistor in the figure if the battery emf is 3.1 volts? Assume that the electric field in the thick wires is very small (so that the potential differences along the thick wires are negligible).

| -3.1 | ✔ V

Do you have enough information to determine the current I in the circuit?

○ yes

◉ no

✔

- *Read the eBook*
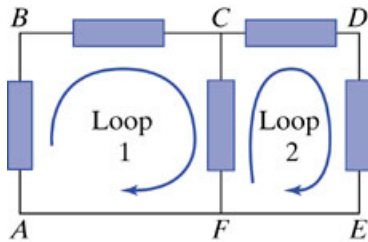- <u>Section 19.9</u>

4. 2/2 points | Previous Answers   MI3 19.9.X.057

(a) In the figure, suppose V_C - V_F = 10 volts, and V_D - V_E = 8.5 volts. What is the potential difference V_C - V_D?

| 1.5 | ✓ V |

(b) If the element between C and D is a battery, is the + end of the battery at C or at D?
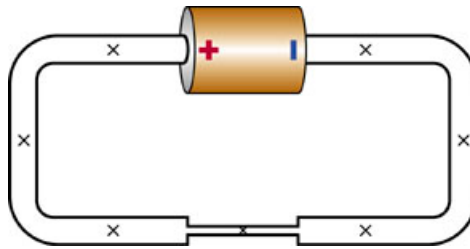
- ⊙ + end is at C
- ○ + end is at D

✓

- *Read the eBook*
- Section 19.9

5. 1/1 points | Previous Answers   MI3 19.3.X.040

A steady-state current runs in the circuit below. The narrow resistor and thick connecting wires are made of the same material.

Which of the following quantities are *greater* in the thin resistor than in the thick wire?
Check all that apply.

- ☐ *u*
- ☐ *A*
- ☑ *E*
- ☐ none
- ☐ *i*
- ☐ *n*
- ☑ *v*

    ✔

- •   *Read the eBook*
- • Section 19.3