WebAssign
CH18-HW02-FALL2010 (Homework)

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PHYS 272-FALL 2012, Fall 2012
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Current Score : 9 / 9 **Due :** Tuesday, October 2 2012 11:59 PM EDT

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1. 1/1 points | Previous Answers MI3 18.5.X.042

In a particular wire in a circuit, conventional current flows in the -y direction. What is the direction of electron current in the wire?

electron current *i* flows in the +y ✓ direction.

- *Read the eBook*
- Section 18.5

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2. 1/1 points | Previous Answers MI3 18.5.X.009

If an electron current is 3.4×10^{19} electrons/s, what is the conventional current?

5.44 ✓ A

- *Read the eBook*
- Section 18.5

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3. 3/3 points | Previous Answers MI3 18.2.X.003

A current-carrying wire oriented north-south and laid over a compass deflects the compass 18° to the east. What is the magnitude of the magnetic field made by the current? The horizontal component of Earth's magnetic field is about 2×10^{-5} tesla.

6.5e-6 ✓ TWhat direction does the electron current flow in the wire?

- ○ The electron current flows from north to south.
- ◉ The electron current flows from south to north. ✓

- *Read the eBook*
- Section 18.2

4. 2/2 points | Previous Answers MI3 18.2.X.039

A current carrying wire is laid on a table, oriented North-South. Electrons in the wire are flowing South. What is the direction of the magnetic field at a location directly underneath the wire, due only to these moving electrons?

- ○ East
- ◉ West
- ○ North
- ○ South
- ○ into the table
- ○ out of the table

✓

If a compass is placed under the wire, which direction will the needle deflect?

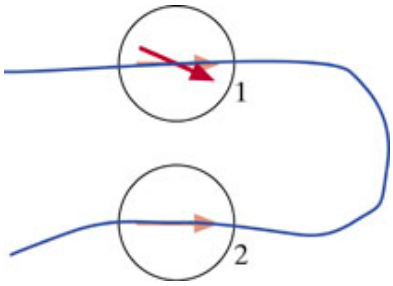
- ○ toward the East
- ◉ toward the West
- ○ no observable deflection

✓

- *Read the eBook*
- Section 18.2

5. 2/2 points | Previous Answers MI3 18.2.X.040

Consider the portion of a circuit shown in the figure. When no current is running, both compasses point north (direction shown by the pale arrows). When current runs in the circuit, the needle of compass 1 deflects as shown. The wire is on top of the compass.



Which statements are true about the direction of the needle of compass 2? Draw a sketch indicating its deflection.

- [x] It will deflect the same amount as compass 1.
- [ ] It will switch direction and point towards the lower left.
- [ ] It will not deflect at all.
- [ ] It will switch direction and point towards the upper left.
- [ ] It will deflect less than compass 1 since the current has been used up.
- [x] It will point upward just as much as compass 1.

Which direction does the conventional current flow?

- ( ) clockwise
- (•) counterclockwise

- *Read the eBook*
- Section 18.2