

Physics 112
Quiz #17
October 29, 1999

Name: _____

IF YOU WANT A QUESTION GRADED OUT OF THREE POINTS (-1 [MINUS ONE] FOR WRONG ANSWER!!) WRITE "3" IN SPACE PROVIDED ON EACH QUESTION.

1. Resistor A has twice the resistance of resistor B. They are connected in series to a battery. Then:

- A. Resistor A dissipates four times as much power as resistor B.
- B. Resistor A dissipates twice as much power as resistor B.
- C. Resistor A dissipates the same amount of power as resistor B
- D. Resistor A dissipates half as much power as resistor B.
- E. Resistor A dissipates one fourth as much power as resistor B.

Grade out of 3? Write "3" here: _____

2. A long straight wire is carrying a current. The magnetic field magnitude at a point 1 m from the wire is 6 T. If the current in the wire is tripled, then the magnetic field magnitude at a point **3 m** from the wire will be:

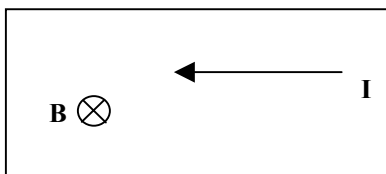
- A. 1 T
- B. 2 T
- C. 3 T
- D. 6 T
- E. 9 T
- F. 12 T
- G. 18 T

Grade out of 3? Write "3" here: _____

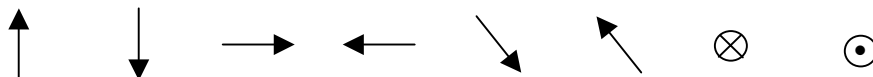
3. Which of these units may be converted into kilowatt-hours?

- A. watts
- B. joules
- C. amperes
- D. volts
- E. ohms
- F. newtons per coulomb
- G. teslas

4. A uniform 4-tesla magnetic field is present in the boxed region, pointing in the direction indicated on the diagram. A wire in the boxed region is carrying a current of 2 A in the direction shown by the arrow marked **I**, and the wire has a length of 3 m. What will be the magnitude and direction of the force on the wire in the box?



DIRECTION: (Circle one)



MAGNITUDE: (Must be within 10% of correct answer; deduction for incorrect units) **ANSWER:** _____