

Physics 112
Quiz #15
October 23, 2000

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. Two identical resistors are connected in parallel to a battery. If a third resistor is added in parallel, what will happen to the total amount of energy provided each second by the battery to the circuit:
- A. It will increase.
 - B. It will decrease.
 - C. It will remain unchanged.
 - D. It will depend on whether the third resistor has a resistance larger than, smaller than, or equal to the other two.

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

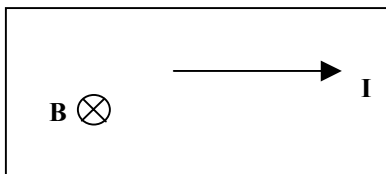
2. A long straight wire carrying a current produces a magnetic field. The field magnitude at a point 1 m from the wire is 6 T. If the current in the wire is tripled, then the magnetic field magnitude at a point **6 m** from the wire will be:

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

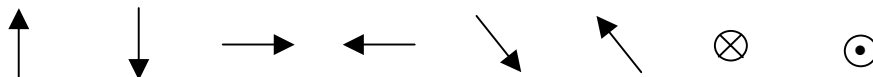
Grade out of 3? Write "3" here: _____

3. A 2- Ω , a 4- Ω , and an 8- Ω resistor are connected in **parallel** to a battery. Which resistor has the most electrons flowing through it each second?
- A. the 2- Ω resistor
 - B. the 4- Ω resistor
 - C. the 8- Ω resistor
 - D. All three resistors have the same number of electrons flowing through them each second.
 - E. There is not enough information given to answer this question.

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 3 A in the direction shown by the arrow marked **I**. The wire has a length of 4 m. What will be the magnitude and direction of the force on the wire?



DIRECTION: (Circle one)



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