Name: **Period:**
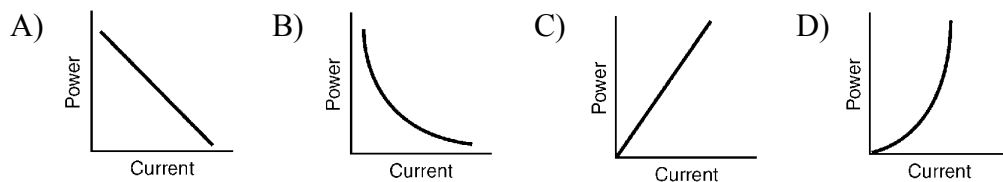
Ohm's Law Factors & Graphs

1. Which graph best represents the relationship between the electrical power and the current in a resistor that obeys Ohm's Law?

A)   B)   C)   D)

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2. An electric circuit consists of a variable resistor connected to a source of constant potential difference. If the resistance of the resistor is doubled, the current through the resistor is

   A) halved   B) doubled
   C) quartered   D) quadrupled

3. A 50-watt lightbulb and a 100-watt lightbulb are each operated at 100 volts. Compared to the resistance of the 50-watt bulb, the resistance of the 100-watt bulb is

   A) half as great   B) twice as great
   C) one-fourth as great   D) four times as great

4. A 6.0 ohm resistor that obeys Ohm's Law is connected to a source of variable potential difference. When the applied voltage is decreased from 12 V to 6.0 V, the current passing through the resistor

   A) remains the same   B) is doubled
   C) is halved   D) is quadrupled

5. The resistance of a circuit remains constant. Which graph best represents the relationship between the current in the circuit and the potential difference provided by the battery?

A)

B)

C)

D)
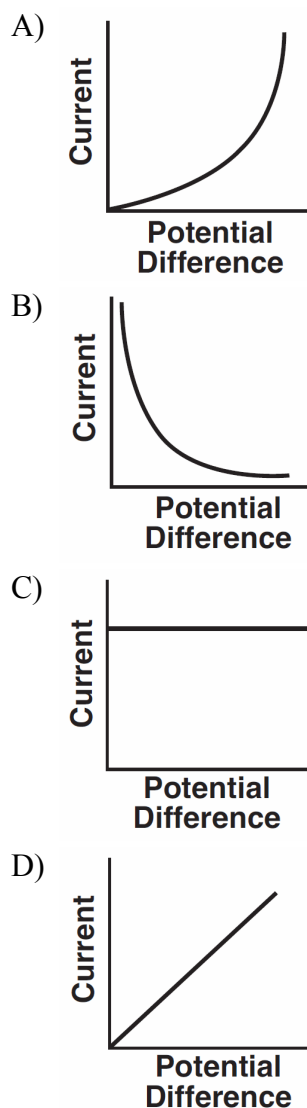
6. Which graph best represents the relationship between the power expended by a resistor that obeys Ohm's Law and the potential difference applied to the resistor?

A)

Power vs **Potential Difference**

B)

Power vs **Potential Difference**

C)

Power vs **Potential Difference**

D)

Power vs **Potential Difference**
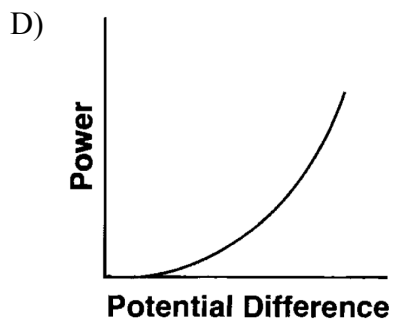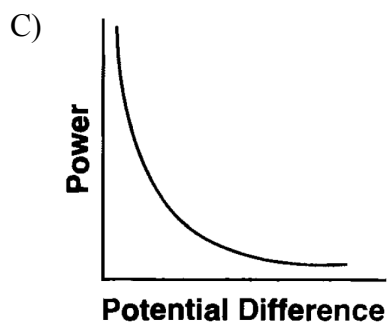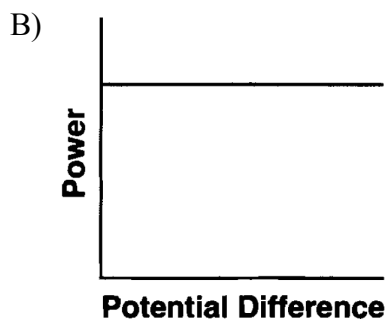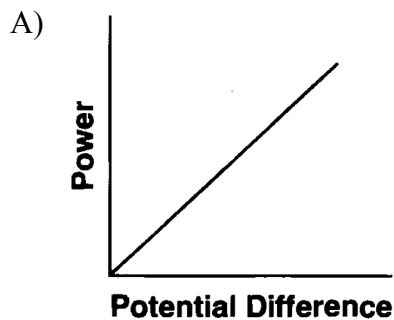
7. A constant potential difference is applied across a variable resistor held at constant temperature. Which graph best represents the relationship between the resistance of the variable resistor and the current through it?

A)

Current vs **Resistance**

B)

Current vs **Resistance**

C)

Current vs **Resistance**

D)

Current vs **Resistance**
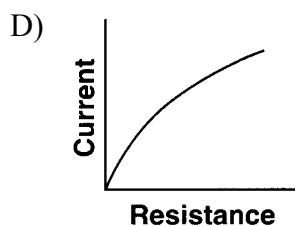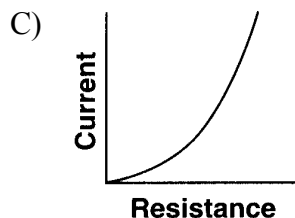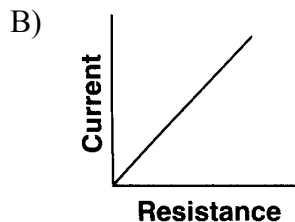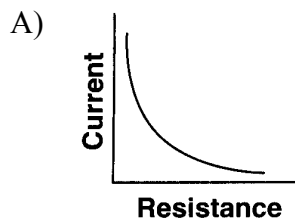
8. Base your answer to the following question on The graph below shows the relationship between current and potential difference for four resistors *A, B, C,* and *D*.

POTENTIAL DIFFERENCE vs **CURRENT** (lines A, B, C, D)
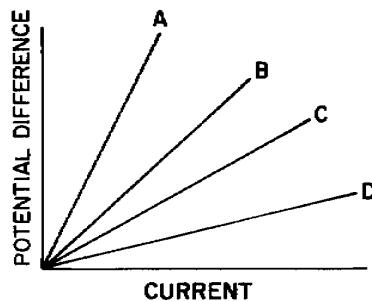
Which resistor has the greatest resistance?

A) *A*   B) *B*   C) *C*   D) *D*

9. Base your answer to the following question on the graph below which represents data obtained by applying different potential differences to a metallic conductor at a constant temperature.
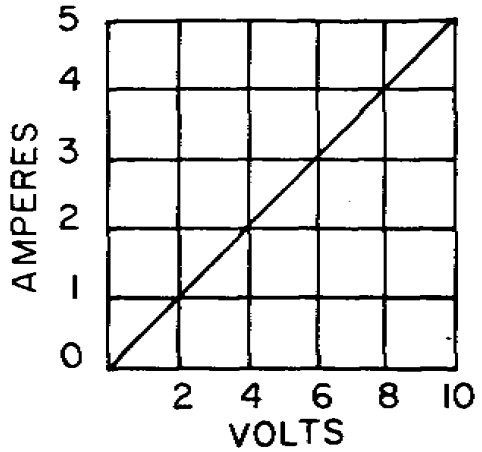
The resistance of the conductor is approximately

A) 1.0 Ω B) 2.0 Ω C) 0.5 Ω D) 4.0 Ω

10. Base your answer to the following question on the accompanying graph which shows the data collected for a copper wire at a constant temperature.
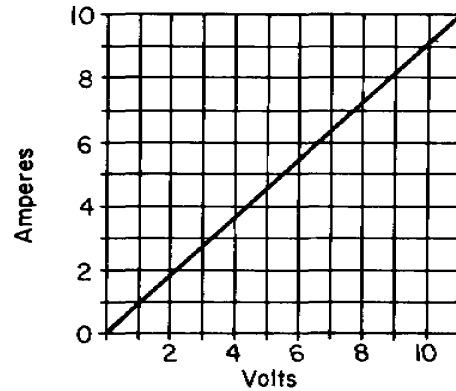
The resistance of the wire is closest to

A) 1 Ω   B) 2 Ω
C) 0.5 Ω   D) 4 Ω