

Name:

Period:

### Ohm's Law Problems

- 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
  - halved
  - doubled
  - quartered
  - quadrupled
- In a simple electric circuit, a 24-ohm resistor is connected across a 6.0-volt battery. What is the current in the circuit?
  - 1.0 A
  - 0.25 A
  - 140 A
  - 4.0 A
- What is the minimum equipment needed to determine the power dissipated in a resistor of unknown value?
  - a voltmeter, only
  - an ammeter, only
  - a voltmeter and an ammeter, only
  - a voltmeter, an ammeter, and a stopwatch
- The current through a 10.-ohm resistor is 1.2 amperes. What is the potential difference across the resistor?
  - 8.3 V
  - 12 V
  - 14 V
  - 120 V
- 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
  - half as great
  - twice as great
  - one-fourth as great
  - four times as great
- A 330.-ohm resistor is connected to a 5.00-volt battery. The current through the resistor is
  - 0.152 mA
  - 15.2 mA
  - 335 mA
  - 1650 mA
- In a simple electric circuit, a 110-volt electric heater draws 2.0 amperes of current. The resistance of the heater is
  - 0.018  $\Omega$
  - 28  $\Omega$
  - 55  $\Omega$
  - 220  $\Omega$
- What is the potential difference across a 2.0-ohm resistor that draws 2.0 coulombs of charge per second?
  - 1.0 V
  - 2.0 V
  - 3.0 V
  - 4.0 V
- A series circuit has a total resistance of  $1.00 \times 10^2$  ohms and an applied potential difference of  $2.00 \times 10^2$  volts. The amount of charge passing any point in the circuit in 2.00 seconds is
  - $1.26 \times 10^{19}$  C
  - 2.00 C
  - $2.52 \times 10^{19}$  C
  - 4.00 C
- The ratio of the potential difference across a conductor to the current in the conductor is called
  - conductivity
  - resistance
  - charge
  - power