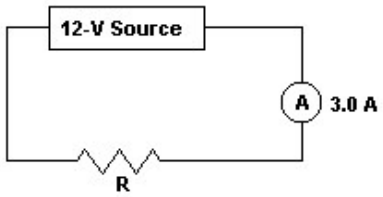
Name: _____

1. In the circuit shown in the diagram below, how many coulombs of charge will pass through resistor *R* in 2.0 seconds?



A. 36 C
B. 6.0 C
C. 3.0 C
D. 4.0 C

2. What is the approximate amount of electrical energy needed to operate a 1600-watt toaster for 60. seconds?

A. 27 J
B. 1500 J
C. 1700 J
D. 96000 J

3. An electric iron draws a current of 5 amperes and has a resistance of 20 ohms. The amount of energy used by the iron in 40 seconds is

A. 100 J
B. 500 J
C. 4,000 J
D. 20,000 J

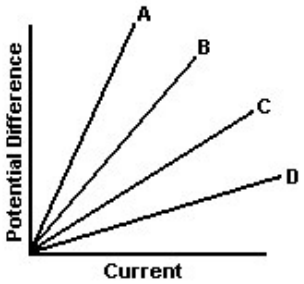
4. A wire carries a current of 6.0 amperes. How much charge passes a point in the wire in 120 seconds?

A. 6.0 C
B. 20. C
C. 360 C
D. 720 C

5. A copper wire has a resistance of 200 ohms. A second copper wire with twice the cross-sectional area would have a resistance of

A. 50 ohms
B. 100 ohms
C. 200 ohms
D. 400 ohms

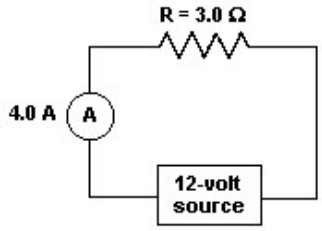
6. The graph shows the relationship between current and potential difference for four resistors, *A*, *B*, *C*, and *D* .



Which resistor has the greatest resistance?

A. *A*
B. *B*
C. *C*
D. *D*

7. The diagram below represents a sample electric circuit.



How much charge passes through the resistor in 2.0 seconds?

A. 6.0 C
B. 2.0 C
C. 8.0 C
D. 4.0 C

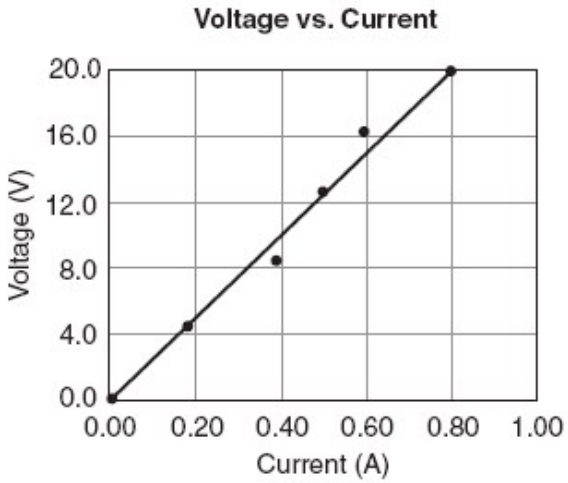
8. A 0.500-meter length of wire with a cross sectional area of 3.14×10^{-6} meters squared is found to have a resistance of 2.53×10^{-3} ohms. According to the resistivity chart, the wire could be made of

A. aluminum
B. copper
C. nichrome
D. silver

9. In a simple electric circuit, a 110-volt electric heater draws 2.0 amperes of current. The resistance of the heater is

A. 0.018 Ω
B. 28 Ω
C. 55 Ω
D. 220 Ω

10. A long copper wire was connected to a voltage source. The voltage was varied and the current through the wire measured, while temperature was held constant. The collected data are represented by the graph below.



Using the graph, the resistance of the copper wire is approximately

A. 8.0 Ω
B. 25 Ω
C. 30 Ω
D. 2.5 Ω

11. If the power developed in an electric circuit is doubled, the energy used in one second is

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

12. While operating at 120 volts, an electric toaster has a resistance of 15 ohms. The power used by the toaster is

A. 8.0 W
B. 120 W
C. 960 W
D. 1,800 W

13. An electric motor uses 15 amperes of current in a 440-volt circuit to raise an elevator weighing 11,000 newtons. What is the average speed attained by the elevator?

A. 0.0027 m/s
B. 0.60 m/s
C. 27 m/s
D. 6000 m/s

14. Which is a unit of electrical power?

A. volt/ampere
B. ampere/ohm
C. $\text{ampere}^2/\text{ohm}$
D. volt^2/ohm

15. As the resistance of a lamp operating at a constant voltage increases, the power dissipated by the lamp
    A. decreases
    B. increases
    C. remains the same