Name: _____   ____/ 13
Chapter 13.3 Homework
Conceptual Physics   Parent Signature: _____

Each numbered question is worth one point unless otherwise noted.

Reviewing Concepts

17. A light bulb has a power of 60 W. Explain what this means in terms of energy and time.

18. Explain how to calculate the power of an electrical appliance.

19. What is the meaning of the kilowatt-hour? How many Joules are equivalent to 1 kWh?

20. What is the difference between direct current and alternating current? (0.5)

21. How frequently does the alternating current used in the United States reverse direction? (0.5)

22. Do thinner or thicker wires have more resistance? Why?

23. Do longer or shorter wires have more resistance? Why?

24. Why can it be dangerous to connect several extension cords to make one long cord?

Solving Problems

13. Calculate the power of each of the following appliances when plugged into a 120-V outlet.
    a. An iron that uses 10 A of current

    b. A stereo that uses 2 A of current

    c. A light bulb that uses 0.5 A of current

14. Calculate the current each of the following appliances uses when plugged into a 120-V outlet.
    a. A 100-W computer

    b. A 1,200 W microwave

    c. A 30-W radio

15. A portable MP3 player requires 1.5 A of current and has a power of 15 W. What is the voltage of the rechargeable battery it uses?

16. A flashlight contains a 6-W bulb that uses 2A of current. How many 1.5-V batteries does it use?

17. Alex uses a 1,000-W heater to heat his room.
    a. What is the heater's power in kilowatts?

    b. How many kilowatt-hours of electricity does Alex use if he runs the heater for 8 hrs?

    c. If the utility company charges $0.15 per kilowatt-hour, how much did it cost to run the heater for 8 hours?

18. You watch a movie on a 300-W television for two hours.
    a. What is the television's power in kilowatts?

    b. How many kilowatt-hours of electricity did you use?

    c. If the utility company charges $0.15 per kilowatt-hour, how much did it cost to watch the movie?