

Name: _____ Date: _____ Period: _____

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Chapter 19 Worksheet: Electrical Resistance

1. While traveling, you should always find out the voltage that is used in that country *before* you plug in an appliance. To understand the reason for this precaution, calculate the current that a computer would draw from a 120 V outlet in the U.S. if the computer has a resistance of 30.0Ω . Then, calculate the current that the same computer would draw if you plugged it into a 240 V outlet in France.
2. A radio is plugged into a 120 V outlet. The radio circuit carries a current equal to 0.95 A. What is the overall resistance of the radio?
3. An electric Golf Cart is equipped with an electric motor that can deliver 45 horsepower. The voltage across the motor's terminals equals 5.00×10^2 V, and the current through the motor is 0.75 A. What is the resistance in the motor's circuit?
4. A medium-sized household ceiling fan draws 445 mA of current when the potential difference across its motor is 120 V. How large is the fan's resistance?
5. A kitchen freezer's circuit carries a current equal to 0.75 A when the voltage across the circuit equals 110 V. How large is the resistance of the freezer's circuit?
6. You have probably heard that high-voltages are more dangerous than low voltages. To understand this, assume that your body has a resistance of $1.0 \times 10^5 \Omega$. What potential difference would have to be across your body to produce a current of 1.0 mA (tingling feeling) and 15 mA (fatal current)?
7. A battery-powered electric flashlight is used as a light source for camping. The light bulb in the flashlight has a resistance of 4.4Ω . Assume that the rest of the flashlight's circuit has no resistance and that the current through the circuit is 0.55 A. Calculate the potential difference across the flashlight's battery.
8. Electric garbage disposals are units with rapidly rotating steel blades, which are able to crush and chop up food so that it can be washed down the drain of a sink. The motor of a garbage disposal has a resistance of about 20.0Ω . If the current through the motor equals 5.66 A, what is the potential difference across the motor's terminals?
9. A laundry dryer motor carries a current through a circuit with a resistance of 10.2Ω . If the dryer is plugged into a 120 V outlet, what is the current in the motor?
10. If you were to swim in the Atlantic Ocean off the coast of Brazil, the resistance of your body could drop as low as $1.0 \times 10^2 \Omega$. An electric eel in Brazil can have a potential difference of up to 550 V across it. If you came into contact with this eel while swimming, what current would be delivered to your body?