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- 29.** A certain waffle iron is rated at 1.00 kW when connected to a 120-V source. (a) What current does the waffle iron carry? (b) What is its resistance?

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- 35.** Batteries are rated in terms of ampere-hours ($A \cdot h$). For example, a battery that can produce a current of 2.00 A for 3.00 h is rated at $6.00\text{ A} \cdot h$. (a) What is the total energy, in kilowatt-hours, stored in a 12.0-V battery rated at $55.0\text{ A} \cdot h$? (b) At $\$0.110$ per kilowatt-hour, what is the value of the electricity produced by this battery?

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- 56.** **M** An all-electric car (not a hybrid) is designed to run from a bank of 12.0-V batteries with total energy storage of 2.00×10^7 J. If the electric motor draws 8.00 kW as the car moves at a steady speed of 20.0 m/s, (a) what is the current delivered to the motor? (b) How far can the car travel before it is “out of juice”?

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68. The dielectric material between the plates of a parallel-plate capacitor always has some nonzero conductivity σ . Let A represent the area of each plate and d the distance between them. Let κ represent the dielectric constant of the material. (a) Show that the resistance R and the capacitance C of the capacitor are related by

$$RC = \frac{\kappa\epsilon_0}{\sigma}$$