Problem 27.29

a.) 1.00 kW waffle iron across a 120 volt source—what's the current drawn?

$$P = iV$$
$$\Rightarrow \left(10^3 \text{ W}\right) = i\left(120 \text{ V}\right)$$
$$\Rightarrow i = 8.33 \text{ A}$$

b.) Using the power relationship and the solution to "Part a" to determine the resistance:

$$P = i^2R$$
$$\Rightarrow \left(10^3 \text{ W}\right) = \left(8.33 \text{ A}\right)^2 R$$
$$\Rightarrow R = 14.4 \text{ } \Omega$$