

## Power Practice

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- There is a current of 2 A flowing through a 2.7 k $\Omega$  resistor.
  - What is the voltage across the resistor?
  - What is the power rating of the resistor?
  - How much energy is dissipated at the resistor in 1 second?
  - How much energy is dissipated at the resistor in 1 minute?
- A hair dryer has two settings: 600 W and 1200 W. (Household voltage is 120 V)
  - Calculate the current draw for both settings.
  - At which setting do you expect the resistance to be higher? Why?
  - Calculate the resistance at each setting. (Household voltage is 120 V.)
- What is the resistance and current through a 60 W light bulb if it is connected to its proper source voltage of 120 V?
- You buy a 60 W light bulb in Europe, where electricity is delivered to homes at 240 V.
  - If you use the bulb in Europe, what is the current through the light bulb?
  - What is the resistance of the bulb?
- A freezer of resistance 10  $\Omega$  is connected to a 110 V source.
  - What is the current?
  - What is the power delivered to the freezer?

Answers: 1. a) 5400 V b) 10,800 W c) 10,800 J d) 648,000 J 2. a) 5 A & 10 A  
b) 600 W, less current for same voltage c) 24  $\Omega$  & 12  $\Omega$  3) 0.5 A & 240  $\Omega$   
4. a) 0.25 A b) 960  $\Omega$  5. a) 11 A b) 1210 W