

2. A $30\ \Omega$ resistor is connected to a 60 V battery.
 - a. What is the current in the circuit? [2 A]

 - b. How much energy is used by the resistor in 5 minutes? [36,000J]

3. The resistance of an electric stove element at operating temperature is $11\ \Omega$.
 - a. If 220 V are applied to it. What current flows through the element? [20A]

 - b. How much energy does the element use in 30 seconds? [132,000 J]

4. An electric heater is rated at only 500 Watts.
 - a. How much energy (Joules) does the heater use in half an hour? [9×10^5 J]

5. A 100 Watt light bulb is 20% efficient at producing light.
 - a. How many Joules does the light bulb convert into light each minute it is in operation? [1200 J]

 - b. How many of heat does the light bulb produce each minute? [4800 J]

6. How much energy does a 60 W light bulb use in half an hour? If the light bulb is 25% efficient, how much heat does it generate during the half hour? [81,000 J]

7. An electric space heater draws 15 A on a 120 V line. It is operated, on average, for 5.0 hours daily.
 - a. How much power does the heater use? [1.8 kw]

 - b. How much energy in kwh does it consume per month (30 days)? [270 kwh]

 - c. At \$0.08 per kwh, what does it cost to operate the heater per month? [\$21.60]