1. Express the following quantities in Engineering Notation with metric prefixes, and 3 significant digits:

   (a) 12,500 W (a) =

   (b) 0.0041 A (b) =

   (c) 39,000 Ω (c) =

   (d) 0.000065 V (d) =

   (e) 4.72×10^{-8} J (e) =

2. A 14V battery is rated for 10Ah. Assuming the voltage does not change appreciably during discharge:

   (a) If you want the battery to last at least 12 hours, what is the smallest resistance that can be connected to the battery?

   Resistance =

   (b) If instead you attach a 28Ω resistor, how much power would it consume and how long would the fully charged battery last?

   Power = Time =

3. Your Colorado Springs Utilities energy bill is $250 for last month (31 days) with an energy consumption of 4,800 kWh.

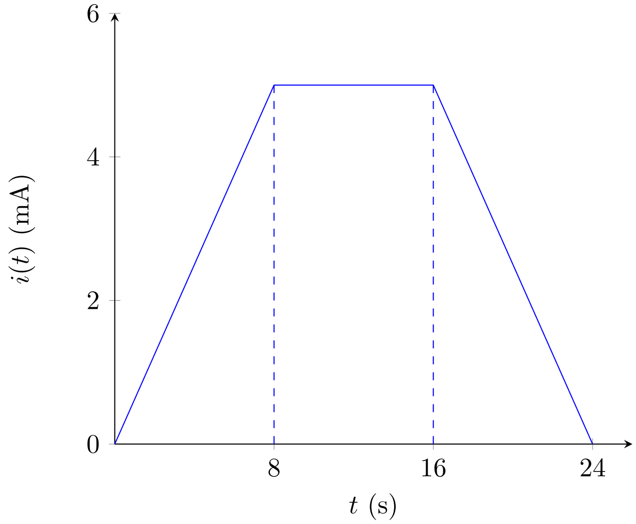
   (a) What is the cost of energy at your location (¢/kWh) and what is your average power draw (kW)?

   Cost = Power =

   (b) If 240V is supplied to your house, estimate the average current draw from the utility.

   Current =

4. Given the following current waveform, determine how much charge in Coulombs has accumulated at 24 seconds (assume the current is zero for all negative time).



Charge =