1. Write each of the following measurements by using an appropriate metric prefix.
   
   a. \(3 \times 10^3 \text{ m} = \) 
   b. \(7.8 \times 10^6 \text{ s} = \) 
   c. \(4.29 \times 10^4 \text{ g} = \) 
   d. \(2.21 \times 10^{-3} \text{ g} = \) 
   e. \(4.194 \times 10^9 \text{ Bytes} = \) 

2. Make each of the following unit conversions.
   
   a. \(3.16 \text{ g} = \) 
   b. \(0.624 \text{ km} = \) 
   c. \(1.0 \text{ mm} = \) 
   d. \(55.0 \text{ cm} = \) 
   e. \(9.45 \text{ m}^2 = \) 

3. Which of each pair of substances below would have the larger volume (refer to Table 1.6 for densities)? Show your work.
   
   a. 15 g of magnesium or 15 g of water?
   
   b. 14 g of gold or 12 g of mercury?

4. Make the following temperature conversions. Show your work.
   
   a. \(100 \degree \text{F} = \) 
   b. \(-40 \degree \text{C} = \) 
   c. \(45 \degree \text{F} = \)
5. One of the environmental topics these days is global warming. Data seem to suggest a general warming trend of the Earth since the onset of the industrial revolution in the mid-1800s (see Figure 13-13 in your textbook). Consider developing a desirability quotient for the use of fossil fuels.

   a. What are some of the benefits of using fossil fuels?

   b. What are some of the risks of using fossil fuels?

   c. How would the DQ for the use of fossil fuels for a human being differ from that for, say, a penguin? Explain.