This homework is due on Tuesday, January 25, at class time. The assignment will be accepted up until the start of class on Wednesday, January 26, with a 20% penalty. Assignments turned in after class that day will receive no credit, though I will look through them if you want me to.

1. (5 points) Circle the larger of the two measurements below.
   a. 34.5 m or 1.23 km
   b. 100 Mg or 1.00 \times 10^{10} \text{ mg}
   c. 8.45 mL or 8.45 \times 10^{-4} \text{ L}
   d. 3.45 miles or 2.5 km
   e. 5 L or 5 gallons

2. (5 points) Make the following conversions.
   a. 3.75 cm = \underline{\quad} \text{ m}
   b. 6.54 GHz = \underline{\quad} \text{ MHz}
   c. 5.32 \times 10^{21} \text{ mm} = \underline{\quad} \text{ km}
   d. 73400 ms = \underline{\quad} \text{ s}
   e. 0.00000654 g = \underline{\quad} \text{ mg}

3. (5 points) A rectangle has dimensions 0.300 m \times 0.500 m. Show your work.
   a. What is the area of the rectangle in m^2?
   b. What is the area of the rectangle in mm^2?
   c. How many mm^2 are in 1 m^2? Describe your reasoning
4. (5 points) The mass of a particular sample is 52.35 g and its volume is 7.28 cm$^3$. Show your work.
   
a. What is its density in g/cm$^3$?

   b. What is its density in kg/m$^3$?

   c. What volume of this material would be required to have a mass of 475 g?

5. (3 points) Estimate the temperatures indicated below. Report your answers in the Fahrenheit, Celsius, and Kelvin scales. Show your work.
   
a. human body temperature

   b. room temperature

   c. the temperature of liquid nitrogen (you may have to look a little for this one – it is basically the boiling point of nitrogen)

6. (3 points) Several pieces of a metal, totaling 32.5 cm$^3$, are placed on a piece of paper and the mass is found to be 64.3 g. If the paper has a mass of 1.45 g, what is the density of the metal?