1. (5 points) For each of the following state whether it is a pure substance or a mixture. Further, if it is a pure substance state whether it is an element or a compound. For mixtures state whether the mixture is homogeneous or heterogeneous.

   a. A cup of water with a pinch of salt in it ______________________________

   b. A bottle of salad dressing that obviously requires shaking before use ____________________________________________________________

   c. A cup of water with salt laying on the bottom of the cup ________________________________________________________________

   d. A sample of pure helium gas inside of a balloon _____________________

   e. A sample of “perfectly” distilled water ____________________________

2. (4 points) Zinc is a bluish-white lustrous metal with a melting point of 692.68 K, a boiling point of 1180 K and a density of 7.14 g/cm³. It is brittle at ordinary temperatures but malleable at 100-150°C. It is a fair conductor of electricity, and burns in air at high red heat with evolution of white clouds of the oxide. Sort the properties described in this short description as to whether they are physical or chemical properties.

   Physical properties:

   Chemical properties:
3. (5 points) Identify the number of significant figures in each of the following measurements.

   a. 0.0003250 minutes __________
   b. $8.340 \times 10^8$ m __________
   c. 15000 kg __________
   d. 16.000 L __________
   e. $6.3 \times 10^{-5}$ mg __________

4. (2 points) Conduct the following operations and report the answer to the proper number of significant figures.

   a. $5.3472 \text{ g} + 1.94 \text{ g} + 0.003 \text{ g} =$ ______________
   b. $1.345 \text{ m} \times 0.003246 \text{ m} \times 0.100 \text{ m} =$ ______________

5. (4 points) Make the following conversions.

   a. 23.4 mm = __________ m
   b. 4.13 kg = __________ g
   c. 155.6 cm = __________ mm
   d. 0.00000672 s = __________ ms