1. Using the rules of significant figures, calculate the following: (2pts)
   \[(3.2 \times 10^3) \times (2.14 \times 10^{-13}) / (6.111 \times 10^{-11}) = ?\]

2. Given: \((8.40 \text{m}) \times (94.67 \text{m})\). What is the product expressed to the correct number of significant figures? (1pt)

3. Convert 1.8 g to megagrams. (1pt)

4. How many milligrams are in 0.36g? (1pt)

5. Convert 1.45gal to milliliter (1L = 1.060qt and 4qt = 1gal) (1pt)

6. A chemistry student weighs 150 lb. How many kilograms does the student weigh? (1pt)

7. Express the following in scientific notation (10pts)
   
   a) 8,319
   b) 21,467
   c) 5,300,000
   d) 0.0005047
   e) 0.001910
   f) 58,496
   g) 83,000,000
   h) 0.0000009
   i) 0.720
   j) 0.89

8. Convert following to regular notation (5pts)
   
   a) \(8.2 \times 10^5\)
   b) \(5.72 \times 10^8\)
   c) \(58.85 \times 10^7\)
   d) \(8.956 \times 10^{-4}\)
   e) \(5.0 \times 10^{-2}\)
9. In the following calculations round your answer to the appropriate number of sig.fig. and use a scientific notation: (6pts)

   a) \( \frac{1.67}{26.38} = \)
   b) \( 3.26 + 4.1 = \)
   c) \( 187.5 - 57.92 = \)
   d) \( \frac{653}{5.75 \times 10^8} = \)
   e) \( (3.6 \times 10^4) \times (3.678 \times 10^6) = \)
   f) \( 850,000 - (9.0 \times 10^5) = \)

10. What is the number of significant figures in each of the following measurements? (6pts)

   a) 4867 mi
   b) 98 mL
   c) 3900 g
   d) 0.00000006 cm
   e) 0.7 min
   f) \( 4.74 \times 10^{19} \) atoms

11. Classify each of the following as an element, a compound, a homogeneous mixture, or heterogeneous mixture: (8pts)

   a) hydrogen gas
   b) seawater
   c) helium gas
   d) sodium chloride (table salt)
   e) a bottle of soft drink
   f) a milkshake
   g) air in the bottle
   h) concrete

12. Write the numbers represented by the following prefixes: (7pts)

   a) mega –
   b) kilo –
   c) centi –
   d) milli –
   e) micro –
   f) nano –
   g) pico –
13. Convert the following temperatures: (10pts)
   a) 113 °C to K = 
   b) 89 F to C = 
   c) 4.2 K to °C = 
   d) –273.15 °C to F = 
   e) 102 °F to K = 

14. Calculate the density of Bromine if 568 g of the substance occupies 188 mL? (5pts)

15. Carry out the following conversions: (10pts)
   a) 185 nm to meters 
   b) 71.2 cm³ to m³ 
   c) 62 m/s to miles per hour (mph) 
   d) 242 lb to milligrams 
   e) 7.2 m³ to L 

16. What are the SI Base units for: (4pts)
   a) Length 
   b) Mass 
   c) Time 
   d) Temperature