Unit 1 Reading Assignment

Learning Objectives in this Unit:

- *Recognize Uncertainty in measurements, use significant figures in dimensional analysis problem solving, and understand the difference between accuracy and precision*
- *Units and Dimensional Analysis*

Read more about this topic: Section 1.4, Section 1.5, and Section 1.6

1. Select the types of information that can be found in every measurement: Magnitude, direction, time, standard of comparison, indication of uncertainity.
2. Match the property to the base unit

Length	kilogram (kg)
Mass	kelvin (K)
Time	mole (mol)
Temperature	meter (m)
Electric Current	candela (cd)
Amount of Substance	ampere (A)
Luminous Intensity	second (s)

3. A measurement is reported as 270.5 m. Which statement is true about this measurement?
   a. The length is 270.50 m
   b. All of the digits are certain
   c. The 2 and the 7 are certain, but the 0 and the 5 are estimated
   d. The digits 2, 7 and 0 are certain, but the 5 is an estimate

4. Match the rule for rounding to the correct number of significant figures with the operation where it should be used

Addition and Subtraction	Round to the same number of digits as the number with the least number of significant figures
Multiplication or Division	Round to the same number of decimal places as the number with the least number of decimal places

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5. For each of the following numbers, indicate whether the number should be rounded up or down to round to three digits
   a. 4.352
   b. 6.785
   c. 3.776
   d. 7.355

6. The density of a piece of metal is 0.891 g/cm^3. Which of the following sets of measurements is both accurate and precise
   a. 0.891 g/cm^3, 0.899 g/cm^3 0.883 g/cm^3
   b. 0.891 g/cm^3, 0.890 g/cm^3 0.892 g/cm^3
   c. 0.881 g/cm^3, 0.882 g/cm^3, 0.880 g/cm^3

7. Fill in the Blank.
   _____ values agree with each other, _____ values agree with a true value

8. Identify all of the values that are conversion factors
   a. 0.878 g/mL
   b. 2.54 cm/1 inch
   c. 6.12 lbs
   d. 8.9 m^2