**Guided Notes**

*(SIGNIFICANT FIGURES)*

Definition: a prescribed \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ place that determines the amount of rounding off to be done based on the precision of the \_\_\_\_\_\_\_\_\_\_\_\_\_

Consist of all digits known with certainty and \_\_\_\_\_\_\_\_\_\_\_\_ uncertain digit

**Rules for Determining Significant Figures**

* \_\_\_\_\_\_\_\_\_\_\_\_digits are always significant
  + example: 46.3 m has 3 significant figures
  + example: 6.295 g has 4 significant figures
* Zeros \_\_\_\_\_\_\_\_\_\_\_ nonzero digits are significant
  + example: 40.7 m has 3 significant figures
  + example: 87,009 m has 5 significant figures
* Zeroes in \_\_\_\_\_\_\_\_\_\_\_\_ of nonzero digit are not significant
  + example: 0.009587 m has 4 significant figures
  + example: 0.0009 g has 1 significant figure
* Zeroes both at the \_\_\_\_\_\_\_\_\_\_of a number and to the right of a \_\_\_\_\_\_\_\_\_\_\_\_\_point are significant
  + example: 85.00 g has 4 significant figures
  + example: 9.0700 has 5 significant figures

**Problems**

1. Give the number of significant figures in each of the following.

 a)  10.0005 g   \_\_\_\_\_\_

 b)  0.003423 mm  \_\_\_\_\_\_

 c)  67.89 ft  \_\_\_\_\_\_

 d)  78.340 L  \_\_\_\_\_\_

**Rules for using significant figures in calculation**

* For multiplication and division
  + The number of significant figure for the answer can not have more significant figures than the measurement with the \_\_\_\_\_\_\_\_\_\_\_\_\_ significant figures
    - Example: 12.257 x 1.162 = 14.2426234
      * 12.257 = \_\_\_\_\_\_\_\_\_\_\_\_ significant figures
      * 1.162 = \_\_\_\_\_\_\_\_\_\_\_\_\_ significant figures
      * Answer = \_\_\_\_\_\_\_\_\_\_\_ (\_\_\_\_\_\_\_\_\_\_ significant figures)
* For addition and subtraction
  + The number of significant figure for the answer can not have more significant number to the \_\_\_\_\_\_\_\_\_\_\_\_ of the decimal point
    - Example: 3.95 + 2.879 + 213.6 = 220.429
      * 3.95 = has \_\_\_\_\_\_\_\_\_\_\_ significant figures after the decimal points
      * 2.879 has \_\_\_\_\_\_\_\_\_\_\_\_ significant figures after the decimal points
      * 213.6 has \_\_\_\_\_\_\_\_\_\_\_\_ significant figures after the decimal points
      * Answer = \_\_\_\_\_\_\_\_\_\_\_\_ (\_\_\_\_\_\_\_\_\_\_\_\_ significant figure)

Rounding rules

* + Below 5 – round \_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + 5 or above – round \_\_\_\_\_\_\_\_\_\_\_\_

Exact Rules

* has no \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + example: Count value – number of items counted. There is no uncertainty
  + example: conversion value – relationship is defined. There is no uncertainty
* do not consider exact values when determining \_\_\_\_\_\_\_\_\_\_\_\_\_values in a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ result

***CALCULATOR does not account for significant figures!!!!***