# REVIEW AND SUMMARY OF SIGNIFICANT FIGURE RULES

Significant digits are significant because they more than likely were measurements and reflect the precision of the instrument used to measure them. This precision must be reflected in results of calculations.

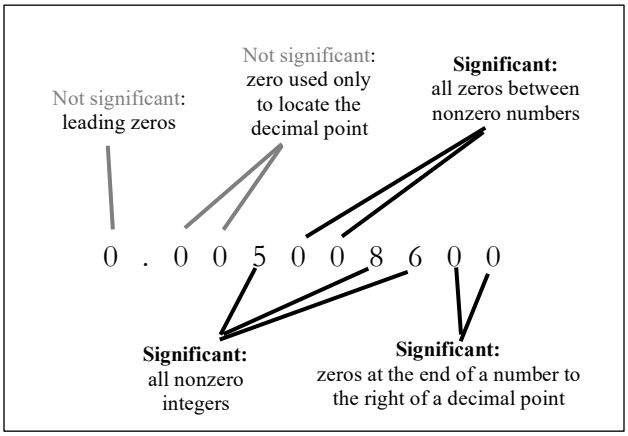
> Remember the **order of operations** with the phrase "Please Excuse My Dear Aunt Sally". It stands for "Parentheses, Exponents, Multiplication and Division, and Addition and Subtraction".

Determine the significant figures of numbers used for calculations and report the result with the correct number of digits, according to the rules outlined in this module.

Follow the order of operations that is standard in mathematics when performing calculations. Do not round the result until the final step in a series of calculations.

### Significant Figure Rules

- Addition and Subtraction – the result is rounded to the same precision (place) as the least precise measurement being added or subtracted.
- Multiplication and Division – the result is rounded off to the same number of significant figures as the least of all those used in the calculation.
- Exact Numbers – Conversion Factors and Counted Numbers – are exact numbers and have an infinite number of significant digits. This means that **conversion factors and or counted numbers do not reduce the number of significant digits** when performing calculations.
- Zeros between significant non-zero numbers are significant.*
- Zeros at the end of a number containing a decimal point are significant.*




*Summary of Measured Significant Digits*

(*These apply to measured numbers and how to count digits for results of calculations.)

- When taking the log of a number with ***n*** significant digits, the result should have ***n decimal places.*** The number in the front of the decimal place represents the order of magnitude. It is not a significant figure.
- The rule for natural logs is similar but not as clear-cut. For simplicity we will use the above rule for natural logs too.