CONCEPT: SIGNIFICANT FIGURES (SIMPLIFIED)

Exact vs Inexact Numbers

- The numbers you will encounter can be either exact or inexact.
  - □ **Exact Number**: A value or integer obtained from _____ objects or is a part of a definition.
    - There are 125 students in your lecture or there are ____ objects in a baker's dozen.
  - □ **Inexact Number**: A value obtained from _____ or measurements that contains some uncertainty.
    - Your textbook is measured at a length of 12.53 inches.

EXAMPLE: Determine if the following statement deals with an exact or inexact number: The combined mass of all doses of a bronchodilator administered to a patient measure 10.0 mg.

Rules for Significant Figures

- **Significant Figures**: the numbers that contribute to the _____ associated with any value.

Significant Figure Rules (HARD)

1. Non-zero digits **ARE** significant.
2. Any zeros between two significant digits **ARE** significant.
3. Leading zeros are **NOT** significant.
4. A final zero or trailing zeros in the decimal portion **ARE** significant.
5. Trailing zeros in a whole number with the decimal point shown **ARE** significant.
6. Trailing zeros in a whole number with no decimal point are **NOT** significant.
7. For a number in scientific notation: N x 10^x, all digits comprising N ARE significant while following the first 6 rules.

Significant Figure Rules (EASY)

1. If your number has a decimal point move from _____ to _____.
   - ☐ Start counting once you get to your first non-zero number and keep counting until the end.

   0.000250 8.03×10^{-5}
2. If your number has NO decimal point move from _____ to _____.
   - ☐ Start counting once you get to your first non-zero number and keep counting until the end.

   7055
3. **Exact Number**: A value or integer that is known with complete certainty.
   - ☐ For an exact number, there are an _____ number of significant figures.

   125 students 12 eggs

EXAMPLE: Determine the number of significant figures in the following value: 0.003840

PRACTICE: How many sig figs does each number contain?

a) 100. min b) 17.3×10^3 mL c) 10 apples

PRACTICE: Indicate the number of significant figures in the following:

A liter is equivalent to 1.059 qt.