

SIGNIFICANT FIGURES GUIDELINES

** the Significant Figures of a measurement are those digits known with certainty plus the rightmost digit that is estimated

** every measurement has a certain number of significant figures

RULES:

- 1) Every NONZERO DIGIT in a measurement is significant
- 2) "Captive" ZEROS are ALWAYS significant.
- 3) LEADING ZEROS are NOT significant.
- 4) TRAILING ZEROS are ONLY SIGNIFICANT IF they follow a DECIMAL POINT.
- 5) "Counted" values and numbers defined in relationships ($100\text{ cm}=1\text{ m}$) are EXACT NUMBERS and have an UNLIMITED NUMBER of significant figures.

RULES FOR CALCULATIONS WITH SIGFIG's

- 1) In MULTIPLICATION AND DIVISION, the answer can have NO MORE SIGNIFICANT FIGURES THAN THE LEAST NUMBER OF SIGNIFICANT FIGURES IN ANY MEASUREMENT IN THE PROBLEM.
- 2) In ADDITION AND SUBTRACTION, the answer can have NO MORE DECIMAL PLACES THAN THE LEAST NUMBER OF DECIMAL PLACES IN ANY MEASUREMENT IN THE PROBLEM
- 3) Round to the appropriate number of SIGFIG's:
 - a) If the first nonsignificant figure is LESS than 5, drop all nonsignificant figures
 - b) If the first nonsignificant figure is 5 or GREATER than 5, increase the last significant figure by one and drop all nonsignificant figures.

PROBLEM SETS:

1. How many significant figures are in each measurement?

- a) 0.723 m
- b) 14.0 g
- c) 123,000 m
- d) 0.00512 kg
- e) 1050 cm