Chapter 2  Data Analysis Kron

2.2 Scientific Notation

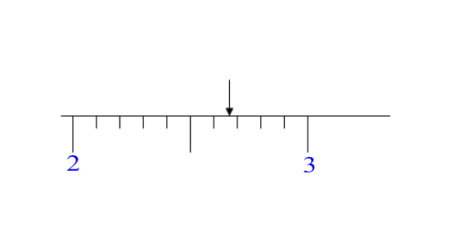
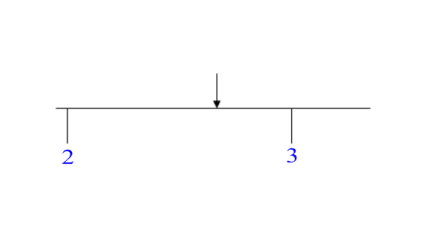
 M x 10n \*\*\* all digits in Sci Not are significant\*\*\*

 1  M < 10

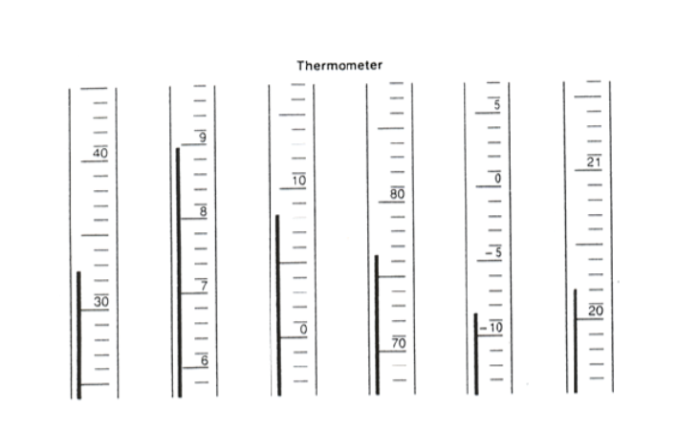
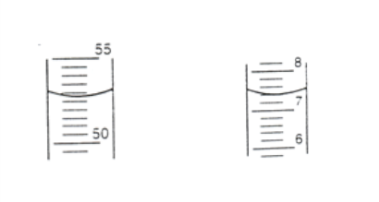
 n = integer (…-2,-1,0,1,2…)

1. 63000 2. 0.000372 3. 34004303000  4. 3.45 x 10-3 5. 2.34 x 107

Significant Figures (Sig Figs) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_!!

Sig Figs

 \*



Rules for determining sig figs

1.

2.

  A.  Trailing zeros (that follow a non-zero number) with no decimal point (not SF's)

   10000  3207000  2.3000  1000.0   1.00 x 1028

   B.  Zeros used to indicate place (leading zero's in front only). (not SF's)

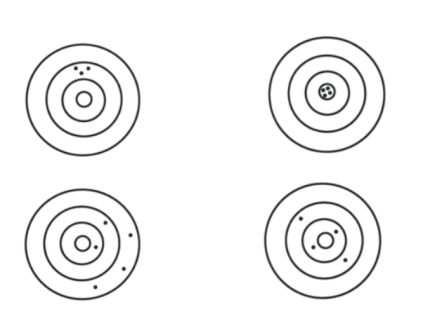
  0.000670  0.00343   0.00303 1.00300300

\*\* General Rule : \*\*

\*\* All digits listed in Sci Not are significant\*\*

 1.35 x 102  2.3 x 105 3.60 x 105

\*\* \*\* (BASICALLY IGNORE)



\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 \* refers to how close a measured value is to the accepted value

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 \* refers to how close a series of measurements are to each other

Accepted = 11.50

Group A   10.50  12.53  13.58 15.35

Group B  11.75  10.50  12.50 11.25

Group C  11.52 11.51  11.49  11.50

Group D 13.52 13.54 13.55 13.53

Relative Error (ER) (Percent Error) (% error)

ER = Units reported as %

\*\* sig figs are based on the number of the observed (lab)\*\*

\*\*\* report to same number of sig figs\*\*\*

A =

O =

2.1 Units of Measurements

SI measurement (*Le Systèm International d'Unités)*

\* \* \*

Standards

 \*

Fundamental SI units

 \*

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 \* combination of fundamental units

 Example :

Prefixes

  Base ten system, easy to convert. Must learn!!

Dimensional Analysis (converting)

 \* a method of converting using units as algebraic factors ( )

Conversion factors

  \* ratio derived from units ( )

Example:

 234 km →  m?

 1000 ms → hs?

 345 kL →mL?

 25.34 oz →kg?

 1.3 yrs →s?

35 cm3→ m3?

125 in2 → cm2?

403 m/s → cm/hr?

875 yd → mm?

**2.4 Representing Data**

Variable

-

Direct Proportion / Direct relationship

\* dividing two variables gives a constant

\*

Inverse Proportion (indirect)

\* product of two variables has a constant

\*