



2. Leading zeros aren't significant
3. *Captive*... significant
4. Trailing zeros (*w/o* decimal point) not significant
5. Exact numbers... infinite

Rules for significant figures in mathematical operations:

1. *carry* the extra digits through to the final result., then round
2. if digit to be removed is less than 5 the preceding digit stays the same
3. if digit to be removed is equal to or greater than 5, the preceding digit is increased by 1

## 1.6 Dimensional Analysis

### 1.7 Temperature

Kelvin and *Celsius* = same size temperature unit

= different zero points (to adjust)

$$T_c = T_k - 273.15$$

$$T_k = T_c + 273.15$$

Celsius and Fahrenheit = degree size and zero points are different

(to convert ->) consider boiling and melting points of water in both temperature scales:

$$\begin{array}{l} \text{bp} \quad \frac{\text{C}}{100} \quad \frac{\text{F}}{212} \quad \frac{180 \text{ F}}{100 \text{ C}} = \frac{9 \text{ F}}{5 \text{ C}} \quad (\text{this will account for the unit difference}) \\ \text{mp} \quad \frac{0}{100} \text{ C} \quad \frac{-32}{180} \text{ F} \end{array}$$

... to take care of the zero point we must....

$$T_F = \frac{9\text{F}}{5\text{C}} * T_C + 32 \text{ F}$$

$$T_C = \frac{5 \text{ C}}{9 \text{ F}} (T_F - 32 \text{ F})$$

matter: anything that takes up space and has mass

states of matter:

-solid... definite shape and volume

-liquid... indefinite shape, definite volume

-gas... indefinite shape and volume

## MIXTURES

HETEROGENEOUS

DISTINGUISHABLE PARTS

HOMOGENEOUS

INDISTINGUISHABLE PARTS

## SOLUTIONS

· Physical change: change in form not change in composition

Methods of separation:

-DISTILLATION: depends on difference in volatility

-filtration

-chromatography: depends on the difference in affinities towards the mobile and stationary phase

· chemical change: change in composition