Qualitative - no numbers
- i.e.: color, shape, heat
- "what you can see/hear/smell, etc."

Quantitative - measurements w/numbers
- consistency w/units
- SI units

SI Units
- "Systeme International" developed in France
- based on powers of 10
- uses prefixes on standard units to show size
  - each prefix represents a power of 10
  - most common in chemistry are kilo-, centi-, milli- + micro-, although deci- and nano- are used as well

Length - meter - m
Volume - cubic meter - m^3
- Liter - L = 1 dm^3
Mass - kilogram - kg
Temperature - Kelvin - K
- degree Celsius - °C
Time - second - s
Density - grams/cm^3 - $g/cm^3 = g/mL$
Pressure - pascal - Pa
- atmosphere - atm
Energy - joule - J
- calorie - cal
Amount of substance - mole - mol

1. 5.23 L = _____ mL

no prefix, base unit

prefix = milli

given 5.23 L × 1 mL / 0.001 L = 5230 mL

wanted

unit w/prefix "1" always gets "1"

copy

base unit always gets multiplier from sheet

$$\frac{734.2\,ms}{1\,ms} \times .001 = s$$

prefix

$$\frac{152.7\,mg}{1\,mg} \times .001\,g = \boxed{.1527\,g}$$

1. 5.23 L = _____ mL

given wanted

"1" always goes w/unit with prefix

$$5.23\ \text{L} \times \frac{1\ \text{mL}}{0.001\ \text{L}} = 5230\ \text{mL}$$

÷ COPY!

Base unit always gets "1"

"Base Unit Multiplier" from sheet

2. 734.2 ms = 0.7342 s

$$734.2\ \text{ms} \times \frac{0.001\ \text{s}}{1\ \text{ms}}$$

1. 5.23 L = _____ mL

given

wanted

wanted

put a "1" in front of unit w/prefix

$$5.23\ \text{L} \times \frac{1\ \text{mL}}{0.001\ \text{L}} = 5230\ \text{mL}$$

copy

base unit gets the "base unit multiplier" From the yellow sheet

2. 734.2 ms = _____ s

$$734.2\ \text{ms} \times \frac{0.001\ \text{s}}{1\ \text{ms}} = 0.7342\ \text{s}$$