CHEMISTRY...Math with Meaning😊

When does 0.5 – 60 = 11?

ALL NUMBERS ARE MEASUREMENTS...
ALL NUMBERS MUST HAVE UNITS!!

• Mass – g, kg, lb
• Volume – L, mL, cm³
• Temperature - °F, °C, K
• Length – m, mm, cm, km, in
• Amount – molecules (mole) and moles (mol)
Conversion Factors are EQUALITIES...

100 pennies = 10 dimes = 4 quarters = 1 dollar

100 cm = 1 m
1 in = 2.54 cm

These equalities can be used in UNIT CONVERSIONS
Dimensional Analysis
An ORGANIZED Method to Convert Units...

ONE Step: Convert 4.76 kilometers into meters...

ONE Steps: Convert 1,800 milliliters into liters...
Dimensional Analysis
An ORGANIZED Method to Convert Units...

TWO Steps: Convert 67,400 milligrams into pounds...

THREE Steps: Convert 5.85 feet into millimeters...
A 11.16 cm³ sample of copper has a mass of 100.0 g. What is the DENSITY?

What would be the mass of a 20.0 cm³ sample?
Density is a Conversion Factor!!

- A **405 g** sample aluminum has a **volume** of **150. cm³**. What is the **DENSITY**?

- What would be the **volume** of a **2000.** gram sample?
Temperature Conversions...
Fahrenheit, Celsius, and Kelvin

°F = (1.8 x °C) + 32  K = °C + 273

Convert 22.5°C to Fahrenheit...

Convert it to Kelvin...
Temperature Conversions...
Fahrenheit, Celsius, and Kelvin

°F = (1.8 x °C) + 32       K = °C + 273

Convert 86°F to Celsius...

Convert it to Kelvin...