**The Gas Laws:**

**Boyle’s, Charles’ and Avogadro’s.**

**Boyle’s:**

Pressure and volume, of any gas, are inversely proportional at a constant temperature.

**Charles’:**

Temperature and volume, of any gas, are directly proportional at a constant pressure.

**Avogadro’s**:

The number of moles that are in a gas is directly proportional to the volume at Standard Temperature and Pressure (STP).

The volume of 1 Mole of any gas will occupy 22.4 L at STP.

Each Law has an equation that can be used to calculate the gas constant (a numerical value that was calculated based on a relationship of 2 or more properties of matter).

Gas Constant *R* = 8.314 J mol-1 K-1

**Used the most = .08206 L atm mol-1 K-1**

=62.36 L torr mol-1 K-1

The only difference are the units. Some times when you are presented with a problem you are given different units.

If the pressure is in mm Hg (millimeters of Mercury) instead of atm (atmospheres) you would need to convert to atm’s before you make the calculation.

If the pressure was given in C (Celsius) instead of K (Kelvin) and K is in the constant, you would need to convert from Celsius to Kelvin.

\*\*Calculations can be made using the gas constant and the proper units.