**Applications of Gas Laws**

**If you are given the pressure, temperature and the amount of moles you can use Avogadro’s law for cases to make predictions and answer questions.**

**Avogadro’s constant for gases:**

***K* = V / *n* (*K*= constant, V = volume and *n=* Moles).**

**Control: a.) b.)**

**T= 250 K T = 375 K T = 250 K**

**n = .140 mol n= .140 mol n = .070 mol**

**p = 1.0 atm p= 1.0 atm p = .50 atm**

**If you had the same gas in a piston that changed in temp. , moles or pressure, how would the gas behave in example a.) and b.)?**

1. **b.)**

**T= 250 K T = 375 K T = 250 K**

**n = .140 mol n= .140 mol n = .070 mol**

**p = 1.0 atm p= 1.0 atm p = .50 atm**

**\*\*1st identify which variables (P,n,t) have changed and use the law or laws that apply.**

**Example a.): Since the temperature increased by 375 / 250 = 1.5 and the amount of moles (n = .140) and the pressure didn’t change, according to Charles’ Law the volume in the gas increases by 1.5 times.**

**Example b.) Since the temperature is unchanged while both the molar (n) amount and the pressure are halved, according to Avogadro’s law (moles go down, Volume goes down) , halving the molar amount will halve the volume and according to Boyle’s Law (Pressure goes down, volume goes down) halving the pressure will double the volume.**

**\*\*Since 1 law doubled the volume and the other halved it, the volume stays the same as the control.**