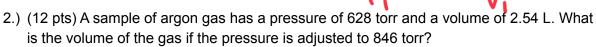
General Chemistry Chapter 5 Pre-Test

decrease)

1.) (2 pts each, 16 pts total) Use your knowledge of ideal gas laws to answer each of the following. Assume all other relevant factors are constant. As the pressure of an ideal gas increases, the volume must (increase or decrease) b) As the volume of an ideal gas decreases, the temperature must (increase or decrease PV=nCT c) As the volume of an ideal gas decreases, the pressure must (increase or decrease) As the temperature of an ideal gas increases, the pressure must (increase or decrease) 1PV=nRTT As the amount of an ideal gas increases, the pressure must (increase) decrease) f) As the amount of an ideal gas decreases, the volume must (increase or decrease) g) As the pressure of an ideal gas increases, the temperature must (increase or decrease) h) As the temperature of an ideal gas increases, the volume must (increase or



$$\frac{V_{1}}{T_{1}} \times \frac{V_{2}}{T_{2}}$$

$$\frac{V_{1}}{T_{2}} = \frac{V_{2}T_{1}}{T_{1}}$$

$$\frac{V_{2}}{T_{1}} = \frac{V_{1}T_{2}}{T_{1}}$$

$$\frac{V_{2}}{V_{2}} = \frac{(1.841)(325 k)}{311 k}$$

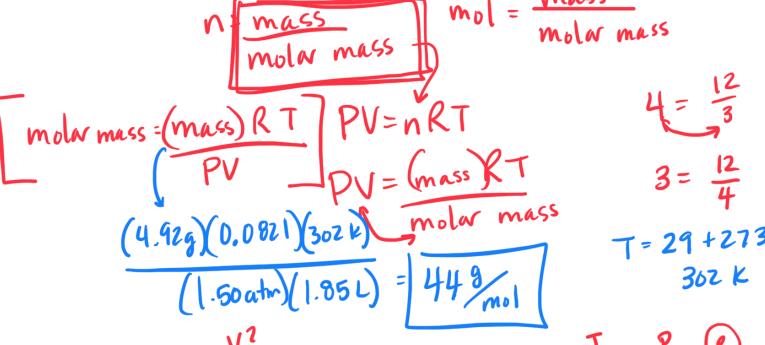
4.) (12 pts) A sealed container of water vapor has a pressure of 1.00 atm and a temperature of 37 °C. What is the temperature of the sealed gas if the pressure is increased to 1.86 atm?

showe side, bus
$$T_2 = \frac{P_2 T_1}{P_1}$$

$$T_2 = P_2 T_1 = \frac{(1.86 \text{ atm})(310 \text{ k})}{1.00 \text{ atm}} P_1 \times P_2$$

= 577 K

6.) (12 pts) A 1.85 L container of 4.92 g of an unknown ideal gas is measured at 1.50 atm and 29.0 °C. What is the molar mass of the gas?



7.) (12 pts) What volume of carbon dioxide is produced from a reaction at 46 °C and 1.15 atm with 7.35 g of C₃H₈ and a seemingly unlimited supply of oxygen? Please balance the reaction prior to solving.

$$PV = nRT$$
 $V = \frac{nRT}{P} = \frac{(0.5 \text{ mol})(0.0821)(319 \text{ K})}{1.15 \text{ Atm}}$

8.) (12 pts) What is the partial pressure of nitrogen dioxide if 0.608 mol of nitrogen dioxide is combined with 1.24 mol of oxygen and 0.382 moles of hydrogen gas where the total pressure of the gas is 1.76 atm?

Total pressure = 1.76 dm 0.608 mol
$$NO_2$$
1.24 mol O_2
0.608 mol NO_2
0.608 mol NO_2
(0.608 + 1.24 + 0.382)
(1.76 atm)

$$\left(\frac{0.608}{2.23}\right)$$
 [.76 atm) = $\left(0.27\right)$ (1.76 atm) $\left(0.48\right)$ atm

Please use 0.0821 L-atm/mol·K as the universal gas constant.