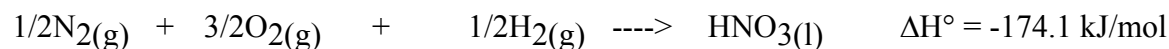
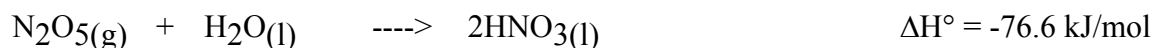


CHM 1045 - Warm Up Exam 3

1. A sample of an ideal gas occupies 30.22 L of volume at 1.50 atm of pressure and 25.0°C. If the temperature is held constant, what volume would the gas occupy if the pressure was lowered to 0.500 atm?
2. A balloon holds 2.00 L of gas at 1.00 atm of pressure and 25.0°C. What volume would the gas have if you put the balloon in the freezer at -10.0°C and lowered the pressure to 401 Torr? (Assume the rubber of the balloon to have no effect on the expansion or contraction of the gas.)
3. What would be the pressure of 1.5 moles of an ideal gas contained in a 3.00 L container, if the temperature was 27.0°C?
4. At 0.0°C, a 1.0 L flask contains 5.0×10^{-2} moles of N_2 , 0.15 grams of O_2 , and 5.0×10^{21} molecules of NO. What is the partial pressure of each gas, and the total pressure of the gas mixture in the flask?
5. What volume would 4.50 moles of oxygen gas occupy at STP (Assume ideal gas behavior)?
6. For the reaction $S(s) + O_2(g) \rightarrow SO_2(g)$ $\Delta H^\circ = -296 \text{ kJ/mol}$
How much heat is evolved when 275g of sulfur is burned with an excess of oxygen?
7. What are the root mean square velocities of the molecules H_2 and CO_2 in a mixture of the gases at a temperature of 37°C?
8. Given the following data:



Calculate the ΔH° for the reaction $2N_2(g) + 5O_2(g) \rightarrow 2N_2O_5(g)$

9. Consider the following data:



Calculate the total enthalpy change under standard conditions for the reaction

