

**Ideal Gas Law/Applications of Gas Laws**

*Answer these questions as you are watching the videos. They are due in class.*

*These questions are not just for you to answer but also to prepare you for the exam.*

*Make sure you understand what you are writing and not just copy from the text book. **Show all work.***

**Combined Gas Law and Ideal Gas Law**

1. A 24.0 liter sample of pure nitrogen gas at 20.0°C and 1.50 atmospheres pressure is heated. What is its pressure at 313°C if its volume is 36.0 liters? (Ans: 2.00 atm)  
(Think: do you need to convert centigrade to Kelvin? Ans: yes!)

2. Find the number of grams of pentane (C<sub>5</sub>H<sub>12</sub>) gas in a 11.2 L sample at 0°C and 2.40 atm pressure. (Ans: 86.3 g) (Think: do you need to convert centigrade to Kelvin?)

3. A 3.80-L cylinder contains 6.83 g of methane, CH<sub>4</sub>, at a pressure of 3320 mmHg. What is the temperature of the gas? (Ans: 200 °C)  
(Hint: calculate the moles of methane and then use the ideal gas law)

4. Calculate the density of carbon dioxide at 546 K and 4.00 atmospheres pressure. (Ans: 3.93 g/L)