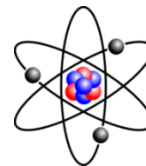


Name:



**Gas Law Math Chapter 10**

**Directions: Sign the pledge, then answer the questions using a calculator. Show all your work.**

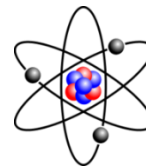
**Pledge:** I pledge my honor that I have neither given nor received any assistance beyond that permitted by the instructor

Signed: \_\_\_\_\_

- 1) How many L of space does 5 moles of butane,  $C_4H_{10}$ , take up at STP?
  
- 2) At what temperature would 2.10 moles of  $N_2$  gas have a pressure of 1.25 atm in a 25.0 L tank?
  
- 3) A 113L sample of helium at  $27^\circ C$  is cooled at constant pressure to  $-8.0^\circ C$ . Calculate the new volume of the helium.

Gas constant <b>R = 8.314 m3pa/°Kmol</b>																	
1 <b>H</b> Hydrogen 1.0																	18 <b>He</b> Helium 4.0
3 <b>Li</b> Lithium 6.9	4 <b>Be</b> Beryllium 9.0											5 <b>B</b> Boron 10.8	6 <b>C</b> Carbon 12.0	7 <b>N</b> Nitrogen 14.0	8 <b>O</b> Oxygen 16.0	9 <b>F</b> Fluorine 19.0	10 <b>Ne</b> Neon 20.2
11 <b>Na</b> Sodium 23.0	12 <b>Mg</b> Magnesium 24.3	3	4	5	6	7	8	9	10	11	12	13 <b>Al</b> Aluminum 27.0	14 <b>Si</b> Silicon 28.1	15 <b>P</b> Phosphorus 31.0	16 <b>S</b> Sulfur 32.1	17 <b>Cl</b> Chlorine 35.5	18 <b>Ar</b> Argon 39.9
19 <b>K</b> Potassium 39.1	20 <b>Ca</b> Calcium 40.1	21 <b>Sc</b> Scandium 45.0	22 <b>Ti</b> Titanium 47.9	23 <b>V</b> Vanadium 50.9	24 <b>Cr</b> Chromium 52.0	25 <b>Mn</b> Manganese 54.9	26 <b>Fe</b> Iron 55.8	27 <b>Co</b> Cobalt 58.9	28 <b>Ni</b> Nickel 58.7	29 <b>Cu</b> Copper 63.5	30 <b>Zn</b> Zinc 65.4	31 <b>Ga</b> Gallium 69.7	32 <b>Ge</b> Germanium 72.6	33 <b>As</b> Arsenic 74.9	34 <b>Se</b> Selenium 79.0	35 <b>Br</b> Bromine 79.9	36 <b>Kr</b> Krypton 83.8
37 <b>Rb</b> Rubidium 85.5	38 <b>Sr</b> Strontium 87.6	39 <b>Y</b> Yttrium 88.9	40 <b>Zr</b> Zirconium 91.2	41 <b>Nb</b> Niobium 92.9	42 <b>Mo</b> Molybdenum 95.9	43 <b>Tc</b> Technetium (98)	44 <b>Ru</b> Ruthenium 101.1	45 <b>Rh</b> Rhodium 102.9	46 <b>Pd</b> Palladium 106.4	47 <b>Ag</b> Silver 107.9	48 <b>Cd</b> Cadmium 112.4	49 <b>In</b> Indium 114.8	50 <b>Sn</b> Tin 118.7	51 <b>Sb</b> Antimony 121.8	52 <b>Te</b> Tellurium 127.6	53 <b>I</b> Iodine 126.9	54 <b>Xe</b> Xenon 131.3

Name:



4) What volume is occupied by 5.03 g of  $O_2$  at  $28^\circ C$  and a pressure of 0.998 atm?

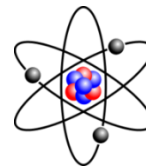
5) An aerosol can contains 400.0 ml of compressed gas at 5.2 atm pressure. When the gas is sprayed into a large plastic bag, the bag inflates to a volume of 2.14 L. What is the pressure of gas inside the plastic bag?

6) What volume will 4.00 mol of ammonia at STP occupy?



7) How many grams of water will be produced if 0.500 g of oxygen gas at STP is burned with hydrogen?

Name: \_\_\_\_\_



8) An oxygen gas tank contains 89.0 g O<sub>2</sub>. If the volume of the tank is 7.5L, and it is at a temperature of 21 °C, what is the pressure in the tank?



9) What mass of CO<sub>2</sub> is needed to fill an 80.0 L tank to a pressure of 150.0 atm at 27.0°C?

10) One mole of an ideal gas is held at standard conditions. At what **Kelvin** temperature would the pressure be doubled?

