

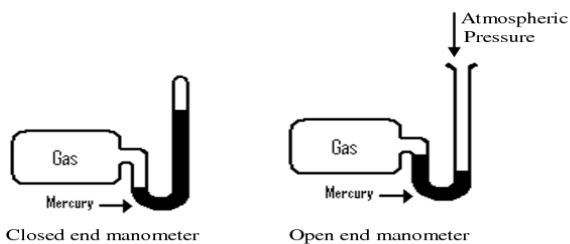
Chem Gas Worksheet #1. Blk \_\_\_\_ Name \_\_\_\_\_

Data to know & use!  $1\text{ atm}=760.\text{ mmHg}=101.325\text{ kPa}=14.7\text{ lb/in}^2$ , or by 1989 definition  
 Standard Pressure =  $100.\text{ kPa}=750.1\text{ mmHg}=14.5\text{ lb/in}^2 = 0.987\text{ atm}= 1\text{ Bar}$ .  
 1 mole gas @ STP =  $22.4\text{ L}=22,400\text{ cm}^3$ . STP= $0^\circ\text{C}$ ,  $1\text{ atm}$ .  $0\text{ K} = -273.15^\circ\text{C} = -459.67^\circ\text{F}$ .  
 1 mole gas @ SATP =  $24.8\text{ L}=24,800\text{ cm}^3$ , Standard Ambient Temp. & Pressure=  $100.\text{ kPa}$ ,  $25^\circ\text{C}$ .

**A. Pressures.** Show a unit cancellation setup. WATCH SIG. FIGS.

- $412\text{ mmHg} = \underline{\hspace{2cm}}\text{ atm}$ .
- $760.\text{ kPa} = \underline{\hspace{2cm}}\text{ mmHg}$
- $14.7\text{ atm} = \underline{\hspace{2cm}}\text{ kPa}$
- $101.325\text{ lb/in}^2 = \underline{\hspace{2cm}}\text{ kPa}$
- $22.4\text{ mmHg} = \underline{\hspace{2cm}}\text{ kPa}$

**B. Manometers.**



- In a closed end manometer, the mercury level was 690. mm higher on the closed end than on the gas side. What was the pressure of the gas?  
 $\underline{\hspace{2cm}}\text{ mmHg}$
- In a closed end manometer, the Hg levels were 419 mm different. What was the gas pressure?  
 $\underline{\hspace{2cm}}\text{ mmHg}$
- In a closed end manometer, the Hg levels were 1273 mm different. What was the gas pressure IN ATM?  
 $\underline{\hspace{2cm}}\text{ atm}$
- Open end manometer: atmospheric pressure 760. mmHg, and the mercury level was 120. mm higher on the right side than the left. What was the gas pressure?  
 $\underline{\hspace{2cm}}\text{ mmHg}$
- Open end manometer, atmospheric pressure 755 mmHg, Hg level 75 mm higher on the left. What was the gas pressure?  
 $\underline{\hspace{2cm}}\text{ mmHg}$
- Open end manometer, with the atmospheric pressure 97.2 kPa. Mercury level 35 mm higher on the left. What is the gas pressure?  
 $\underline{\hspace{2cm}}\text{ kPa}$

**C. Temperatures.** a.  $25^\circ\text{C} = \underline{\hspace{2cm}}\text{ K}$  b.  $-147^\circ\text{C} = \underline{\hspace{2cm}}\text{ K}$  c.  $926\text{ K} = \underline{\hspace{2cm}}^\circ\text{C}$

- d.  $35.2\text{ K} = \underline{\hspace{2cm}}^\circ\text{C}$  e.  $-2.8^\circ\text{C} = \underline{\hspace{2cm}}\text{ K}$  f.  $12,780,000\text{ K} = \underline{\hspace{2cm}}^\circ\text{C}$