Chem 2 AP Homework #5-1: Gases, Pressure & Gas Laws
Problems pg. 203-204 #5.4, 5.7, 5.14, 5.18, 5.20, 5.22, 5.24, 5.26 from Text & Manometer Problem

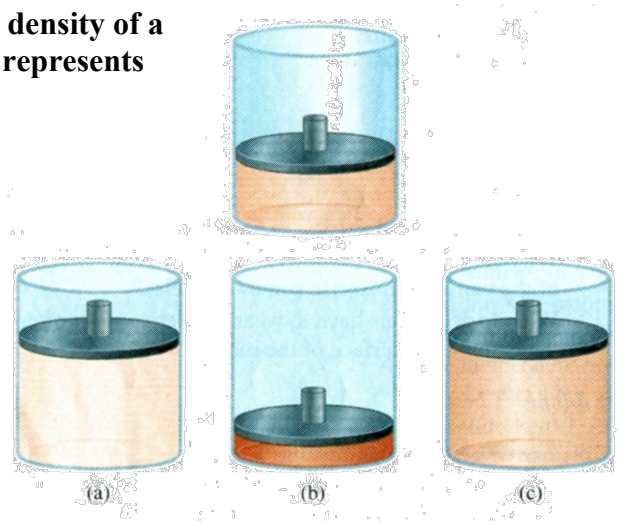
4 Describe how a mercury barometer and monometer are used to measure gas pressure.

7 Would it be easier to drink water with a straw on top of Mt. Everest or at the foot of the mountain?

14 The atmospheric pressure at the summit of Denali is 606 mmHg on a certain day. What is this pressure in atm and in kPa?

18 Given the cylinder at right that represents volume & density of a gas at n, P, and T, select the cylinder below that best represents the following changes. Explain your selections.

(1) Pressure tripled at constant n & T



(2) Temperature doubled at constant n & P

(3) n moles of another gas added at constant T & P

(4) T halved and P reduced to ¼

20 At 46°C a sample of ammonia gas exerts a pressure of 5.3 atm. What is the pressure when the volume of the gas is reduced to one-tenth (0.10) of the original value at the same temperature.

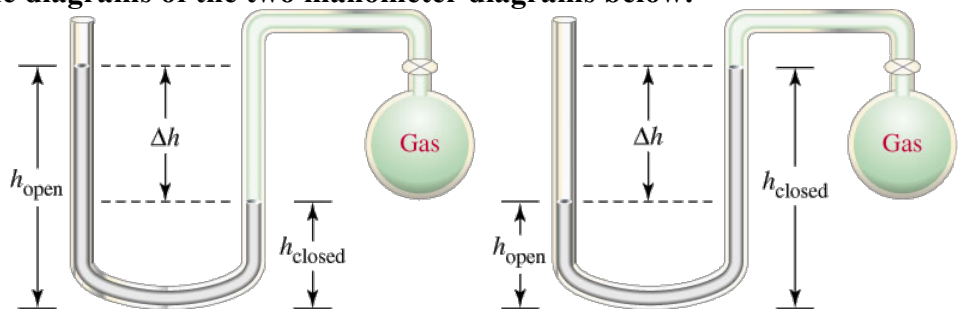
22 **A sample of air occupies 3.8 L when the pressure is 1.2 atm.**
(a) What volume does it occupy at 6.6 atm? (constant T)

(b) What pressure is required in order to compress it to 0.075 L? (constant T)

24 **Under constant-pressure conditions a sample of hydrogen gas initially at 88°C and 9.6L is cooled until its final volume is 3.4L. What is its final temperature?**

26 **Molecular chlorine and molecular fluorine combine to form a gaseous product. Under the same conditions of temperature and pressure it is found that one volume of Cl_2 reacts with three volumes of F_2 to yield two volumes of the product. What is the formula of the product?**

A **Given the diagrams of the two manometer diagrams below:**



(a) For $h_{open} > h_{closed}$, *determine P_{gas} in kPa if P_{atm} = 748 mmHg and Δh = 125 mm*

(b) For $h_{open} < h_{closed}$, *determine P_{gas} in kPa if P_{atm} = 752 mmHg and Δh = 93 mm*

Answers: 14) 0.797 atm, 80.8 kPa; 20) 53 atm; 22a) 0.69 L; 22b) 61 atm; 24) 1.3×10^2 K; Aa) 116 kPa; Ab) 87.8 kPa