

UNIT 3 WORKSHEET - GASES

1. A glass column is filled with mercury and inverted in a pool of mercury. The mercury column stabilizes at a height of 735 mm above the pool of mercury. What is the pressure of the atmosphere?
- 0.697 atm
 - 0.735 atm
 - 0.967 atm
 - 1.03 atm
 - 194 atm

Use the following to answer questions 2-4:

Consider three 1-L flasks at STP. Flask A contains NH_3 gas, flask B contains NO_2 gas, and flask C contains N_2 gas.

- Which contains the largest number of molecules?
 - flask A
 - flask B
 - flask C
 - all are the same
 - none
- In which flask are the molecules least polar and therefore most ideal in behavior?
 - flask A
 - flask B
 - flask C
 - all are the same
 - none
- In which flask do the molecules have the highest average velocity?
 - flask A
 - flask B
 - flask C
 - all are the same
 - none
- You and a friend have gas samples in open manometers as shown:



- You have $\text{Hg}(l)$ in your manometer and your friend has water. The height h is the same in both manometers. Which of the following statements is true?
- Your sample of gas has the higher pressure.
 - Your friend's sample of gas has the higher pressure.
 - Both samples of gas have the same pressure.
 - There is not enough information to answer the question.
 - None of these is correct.

Use the following to answer questions 6-7:

You have two samples of the same gas in the same size container, with the same pressure. The gas in the first container has a kelvin temperature four times that of the gas in the other container.

- The ratio of the number of moles of gas in the first container compared to that in the second is
 - 1 : 1
 - 4 : 1
 - 1 : 4
 - 2 : 1
 - 1 : 2
- The ratio of number of collisions with the wall in the first container compared to that in the second is
 - 1 : 1
 - 4 : 1
 - 1 : 4
 - 2 : 1
 - 1 : 2
- The air pressure in the inner tube of a tire on a typical racing bike is held at a pressure of 115 psi. Convert this pressure to atm.
 - 0.151 atm
 - 7.83 atm
 - 1690 atm
 - 32.6 atm
 - 115 atm
- A gas sample is held at constant pressure. The gas occupies 3.62 L of volume when the temperature is 21.6°C . Determine the temperature at which the volume of the gas is 3.45 L.
 - 309 K
 - 281 K
 - 20.6 K
 - 294 K
 - 326 K
- Gaseous chlorine is held in two separate containers at identical temperature and pressure. The volume of container 1 is 1.30 L and it contains 6.70 mol of the gas. The volume of container 2 is 2.20 L. How many moles of the gas are in container 2.
 - 11.3 mol
 - 19.2 mol
 - 0.427 mol
 - 3.96 mol
 - none of these