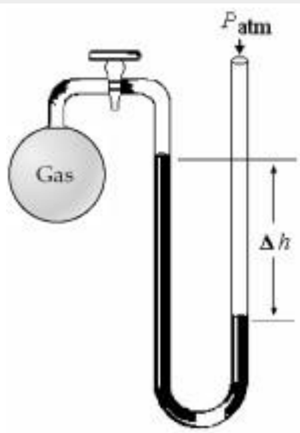
Question 1 **3 points Save**

What is the total pressure in a 10.0 L flask which contains 0.127 mol of H_2(*g*) and 0.288 mol of N_2(*g*) at 20.0°C?

- **0.693 atm**
- **0.999 atm**
- **0.306 atm**
- **0.681 atm**

Question 2 **1 points Save**

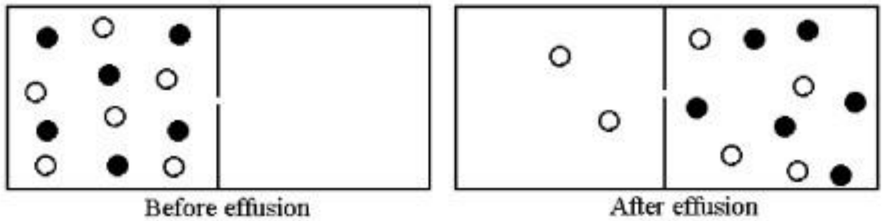


What is the pressure (in mm Hg) of the gas inside the above apparatus if the outside pressure, P_{atm}, is 740.2 mm Hg and the difference in mercury levels, Δ*h*, is 24.7 mm Hg? format 123.4 mm Hg

715.5

Effusion of a 1:1 mixture of two gases, represented by unshaded and shaded spheres in the diagram below, through a small pinhole produces

the result shown below. The shaded spheres have a molecular mass of 32 amu. Which gas molecules have the higher average speed and what is the molecular mass of the unshaded molecules?



- Unshaded molecules have lower average speed and molecular mass = 48 amu
- Unshaded molecules have higher average speed and molecular mass = 14 amu
- Unshaded molecules have higher average speed and molecular mass = 21 amu
- Unshaded molecules have lower average speed and molecular mass = 72 amu

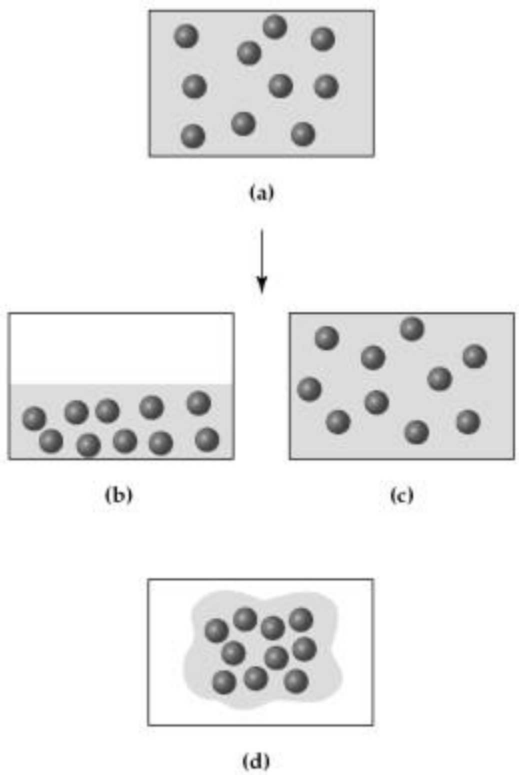
Automobile tires are typically inflated to about 30 pounds of pressure per square inch. What is the typical air pressure of a tire in kPa?

- 2.0×10^{-3} kPa
- 2.1×10^{2} kPa
- 2.0 kPa
- 2.1×10^{5} kPa

What is the Celsius temperature of 100.0 g of chlorine gas in a 50.0-L container at 800 mm Hg?

- -46°C
- 455°C
- 228°C
- 182°C

Assume that you have a sample of gas at 300 K in a sealed container, as represented in (a).



Which of the drawings (b)-(d) represents the gas after the temperature is lowered from 300 K to 200 K?

This is stupid, there is not enough info to answer the question. A gas can stay a gas when cooled (c), become a liquid (b), or a solid (d). Tell your teacher this problem is bogus.

- **drawing (b)**
- **drawing (c)**
- **drawing (d)**

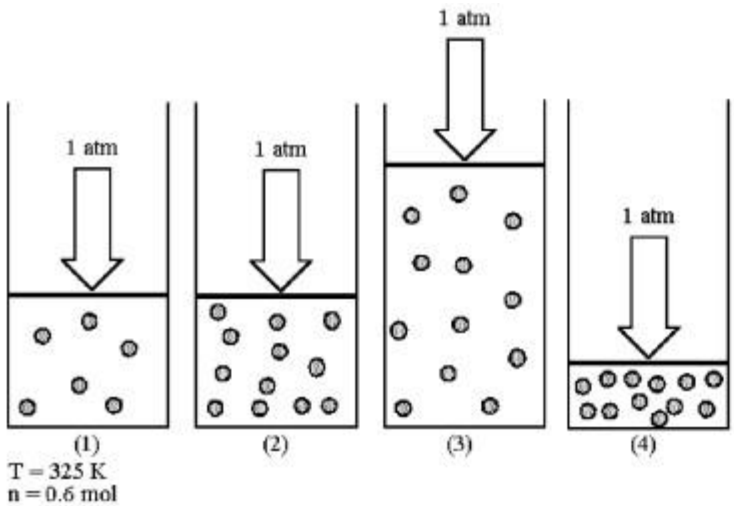
Three identical flasks contain three different gases at standard temperature and pressure. Flask A contains C_4H_{10}, flask B contains SO_2, and flask C contains He. Which flask contains the largest number of molecules?

- flask A
- flask B
- flask C
- All contain same number of molecules.

A 1.00 L flask contains nitrogen gas at 25°C and 1.00 atm pressure. What is the final pressure in the flask if an additional 2.00 g of N_2 gas is added to the flask and the flask cooled to -55°C?

- 1.28 atm
- 2.01 atm
- 3.29 atm
- 2.56 atm

Assume that you have a sample of gas in a cylinder with a moveable piston, as shown in diagram (1). The initial pressure, number of moles, and temperature of the gas are noted on the diagram. Which diagram (2)-(4) most closely represents the result of doubling the number of moles of gas while keeping the pressure and temperature constant?



- diagram (2)
- diagram (3)
- diagram (4)

Some assumptions from the kinetic molecular theory are listed below. Which one is most frequently cited to explain compressibility of a gas?

- A gas consist of tiny particles moving in random straight line motion.
- Collisions of gas particles are elastic and total kinetic energy of the gas is constant.
- The volume of the particles is negligible compared to the volume of the gas.
- The average kinetic energy of gas particles is proportional to the Kelvin temperature.