

1. Blast furnaces give off many unpleasant and unhealthy gases. If the total air pressure is 0.99 atm, the partial pressure of carbon dioxide is 0.05 atm, and the partial pressure of hydrogen sulfide is 0.02 atm, what is the partial pressure of the remaining air?
2. Oxygen and chlorine gas are mixed in a container with partial pressures of 401 mmHg and 0.639 atm, respectively. What is the total pressure inside the container (in atm)?
3. If I place 3 moles of N_2 and 4 moles of O_2 in a 35 L container at a temperature of $25^\circ C$, what will the pressure (in atm) of the resulting mixture of gases be?
4. What's the partial pressure of carbon dioxide in a container that holds 5 moles of carbon dioxide, 3 moles of nitrogen, and 1 mole of hydrogen and has a total pressure of 1.05 atm?
5. A container with two gases, helium and argon, is 30.0% by volume helium. Calculate the partial pressure of helium and argon if the total pressure inside the container is 4.00 atm.
6. Two flasks at the same temperature are joined by a glass tube with a stopcock. Flask A is a 4.0 L flask containing $N_2(g)$ at 2.0 atm, while flask B is a 10.0 L flask containing $CO(g)$ at 1.4 atm. What is the final pressure in the flasks after the stopcock is opened?

Hints:

- Determine the final volume for the gases (easy!).
 - Find the final partial pressure for both N_2 and CO individually. ($P_1V_1 = P_2V_2$)
 - Finally, use Dalton's law to find the total final pressure.
7. Two flasks are connected with a stopcock. The first flask has a volume of 5 liters and contains nitrogen gas at a pressure of 0.75 atm. The second flask has a volume of 8 L and contains oxygen gas at a pressure of 1.25 atm. When the stopcock between the flasks is opened and the gases are free to mix, what will the pressure be in the resulting mixture?
 8. Container A (with volume 1.23 L) contains a gas under 3.24 atm of pressure. Container B (with volume 0.93 L) contains a gas under 2.82 atm of pressure. Container C (with volume 1.42 L) contains a gas under 1.21 atm of pressure. If all of these gases are put into Container D (with volume 1.51 L), what is the pressure in Container D?