Partial Pressure – Study Guide

*section 9.3 in OpenStax*

**Partial Pressures**

Dalton’s law of partial pressures states:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

In a gaseous mixture, the ratio of the partial pressure of a component to the total pressure of the mixture is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

***Watch the video tutorial about*** [***Partial Pressure***](https://www.youtube.com/watch?v=rc5Cv64nK1I&feature=youtu.be)

Which component (H2, O2 or CO2) exerts the highest partial pressure in a gaseous mixture made of 0.50 mol H2, 0.49 mol O2, and 0.48 mol CO2?

*(ans: H2)*

Which of the following mixtures exerts the highest total pressure in 5.0-L container?

1. 0.5 mol H2 + 0.6 mol N2 + 0.4 mol Cl2
2. 0.7 mol H2 + 0.6 mol O2 + 0.1 mol N2
3. 0.6 mol H2 + 0.3 mol Ar + 0.7 mol He

*(ans: c)*

A 25.0-L cylinder contains 3.00 g of hydrogen gas and 14.0 g of nitrogen gas at 25.0oC.

Calculate the mole fraction of each gas:

 *(ans: XH2 = 0.75 and XN2 =0.25)*

Calculate the partial pressure of each gas:

*(ans: PH2= 1.47 atm and PN2= 0.489 atm)*

**End of Chapter 9 Practice Problems**

#57, 59, 61, 63

For detailed solutions to these problems, go to the [OpenStax website](https://openstaxcollege.org/textbooks/chemistry/resources) and download the “Student Answer and Solution Guide.”