The Ideal Gas Law – Study Guide

*sections 9.2 and 9.3 in OpenStax*

**Ideal Gas Law (Section 9.2)**

The value of R is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ when the units for P, V, and T are \_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ respectively.

STP stands for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. At STP the pressure is equal to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and the temperature is equal to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

The molar volume of a gas at STP is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ .

***Watch the video tutorial on the*** [***Ideal Gas Law***](https://www.youtube.com/watch?v=-wvKbi49y90&feature=youtu.be)

An ideal gas sample occupies 1.50 L at 25.0oC and 741 mm Hg. How many moles are there in the sample?

*(ans: 0.0598 mol)*

What volume would the gas sample occupy at STP?

*(ans: 1.34 L)*

**Density of a Gas (Section 9.3)**

Read the derivation in Examples 9.11.

What is the equation that relates the density of a gas to its molar mass?

What is the molar mass of the gas if its density at STP is 0.901 g/L?

*(ans: 20.18 g/mol)*

**End of Chapter 9 Practice Problems**

#31, 33, 35a, 43, 49

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.”