## **CONCEPT:** THE IDEAL GAS LAW

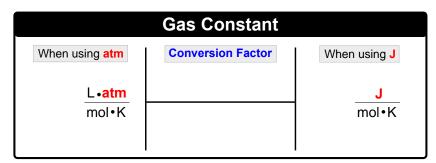
• The Ideal Gas Law formula relates the behavior of gases under varying conditions of \_\_\_\_\_, \_\_\_\_, & \_\_\_\_\_.

	Ideal Gas Law
Ideal Gas Law Formula  PV = nRT	<ul> <li>□ P = Pressure of the gas in</li> <li>□ V = Volume of the gas in</li> <li>□ n = Amount of the gas in</li> <li>□ R = Gas constant of all gases in</li> <li>□ T = Temperature of the gas in</li> </ul>

**EXAMPLE:** A 500 mL container at a pressure of 600 mmHg possesses 29.3 g nitrogen gas at 50 °C. Determine the correct units needed for the Ideal Gas Law.

## **R Constant**

- The gas constant R can have two different values depending on the situation.
  - $\square$  R = 0.08206 when using **atm** in the Ideal Gas Law Formula.
  - □ R = 8.314 when we deal with \_\_\_\_\_, \_\_\_\_, or \_\_\_\_\_.



**EXAMPLE:** How many moles of NH<sub>3</sub> are contained in a 25.0 L tank at 190 °C and 5.20 atm?

CONCEPT: THE IDEAL GAS LAW  PRACTICE: How many grams of carbon dioxide, CO <sub>2</sub> , are present in a 0.150 L flask recorded at 525 mmHg and 32 °C?
<b>PRACTICE:</b> How many liters of HNO <sub>3</sub> gas, measured at 28.0 °C and 780 torr, are required to prepare 2.30 L of 4.15 M solution of nitric acid?
<b>PRACTICE:</b> When 0.670 g argon is added to a 500 cm <sup>3</sup> container with a sample of oxygen gas, the total pressure of the
gases is found to be 1.52 atm at a temperature of 340 K. What is the mass of the oxygen gas in the bulb?