

LO: Students will be able to identify the relationships between volume, pressure, and temperature of gases.

DOL: Students will be able to properly determine the relationships between V, P, and T using gas laws at least 4/5 times.

Write down each problem BEFORE class and we will identify the variables, constants, formula, etc. together. Skip several lines between each problem.

A sample of gas is transferred from a 75 mL vessel to a 500.0 mL vessel. If the initial pressure of the gas is 145 atm and if the temperature is held constant, what is the pressure of the gas sample in the 500.0 mL vessel?

A sample of nitrogen gas has a volume of 478 cm³ and a pressure of 104.1 kPa. What volume would the gas occupy at 88.2 kPa if the temperature remains constant?

8.98 dm³ of hydrogen gas is collected at 38.8 °C. Find the volume the gas will occupy at -39.9 °C if the pressure remains constant.

There are 135 L of gas in a container at a temperature of 2600 °C. If the gas was cooled until the volume decreased to 75 L, what would the temperature of the gas be?

A 75 L container holds 62 moles of gas at a temperature of 2150 °C. What is the pressure in atmospheres inside the container?

6.0 L of gas in a piston at a pressure of 1.0 atm are compressed until the volume is 3.5 L. What is the new pressure inside the piston?

A gas has a volume of 300 mL at 300 mmHg. What will its volume be if the pressure is changed to 500 mmHg?

A gas has a volume of 4 liters at 50°C. What will its volume be (in liters) at 100°C?

The gases in a hair spray can are at a temperature of 27°C and a pressure of 30 lbs/in^2 . If the gases in the can reach a pressure of 90 lbs/in^2 , the can will explode. To what temperature must the gases be raised in order for the can to explode? Assume constant volume.

495 cm^3 of oxygen gas and 877 cm^3 of nitrogen gas, both at 25.0°C and 114.7 kPa , are injected into an evacuated 536 cm^3 flask. Find the total pressure in the flask, assuming the temperature remains constant.

A gas takes up a volume of 17 liters, has a pressure of 2.3 atm, and a temperature of 299 K. If I raise the temperature to 350 K and lower the pressure to 1.5 atm, what is the new volume of the gas?

A gas has a temperature of 14 °C, and a volume of 4.5 liters. If the temperature is raised to 29 °C and the pressure is not changed, what is the new volume of the gas?

If I have 21 liters of gas held at a pressure of 78 atm and a temperature of 900 K, what will be the volume of the gas if I decrease the pressure to 45 atm and decrease the temperature to 750 K?