

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Chemistry**  
*Gas Laws Make-up WS*

1. 8.020 moles of nitrogen gas is present in a 24.2 L container. What is the pressure of the gas in kPa if the temperature in the container is 22°C?
2. If an additional 3.53 moles of oxygen gas were introduced to the container in Problem #1, what would be the new pressure in the container if the temperature is kept constant?
3. The pressure on 2.50 L of anesthetic gas is changed from 760 mm Hg to 304 mm Hg. What will be the new volume of gas if temperature remains the same?
4. If a sample of gas occupies 6.8 L at 376°C and 1.5 atm, what will be its volume at standard temperature and pressure (STP)?
5. A gas has a pressure of 500.0 kPa at 540 °C. What temperature (in °C) will be required to cause the pressure to drop by 180.5 kPa in a rigid container of constant volume?
6. A cylinder of compressed oxygen gas has a volume of 30.0 L and 100.0 atm pressure at 25°C. The cylinder is cooled until the pressure is 5.0 atm. What is the new temperature of the gas?

7. A container with an initial volume of 1.0 L is occupied by a gas at a pressure of 155 kPa at 25 °C. By changing the volume, the pressure of the gas increases to 6.0 atm as the temperature is raised to 100 °C. What is the new volume of the container?
8. A rigid steel cylinder with a volume of 20.0 L is filled with nitrogen dioxide gas to a final pressure of 225 atm at 18.0 °C. How many grams of gas does the cylinder contain?
9. When a rigid hollow sphere containing 680 L of helium gas is heated from 300. K to 600. K, the pressure of the gas increases to 18.5 atm. How many moles of helium does the sphere contain?
10. A 21.50 L gas sample at 14 °C and a pressure of 770 mmHg is allowed to expand to a volume of 80.00 L. What is the final temperature in Kelvins if the final pressure of the gas is 425 mmHg?
11. A sample of oxygen gas has a volume of 205 L when its temperature is 22.0 °C and its pressure is 30.8 kPa. How many grams of gas are in this sample?
12. The following decomposition reaction occurs in a 3.35 L canister filled with air at 220. °C with an initial pressure of 0.980 atm:



If 82.35 g  $\text{CaCO}_3$  are fully reacted, what is the final pressure of gas inside the canister?