Gas Laws Practice Test Name_____ Per_____ Date_____

Complete the boxes for each problem: Tell which gas law is used, write the formula for that law, plug in your numbers to the formula, and solve. Give your answer in the correct number of sig figs with units. Remember that temperature usually has to be in Kelvin (K=°C+273). Write each formula in the box before you begin.

Boyle's Law	Charles's Law	Combined Gas Law	Dalton's Law of Partial Pressure	Ideal Gas Law

1. A given mass of oxygen occupies 560. mL when the pressure is 800. mm of Hg. What volume will the gas occupy at 700. mm Hg, provided the temperature remains constant?

What Law?	Formula?	Plug in values & solve	sig fig answer w/ units

2. Calculate the volume that will be occupied by 280. ml of hydrogen, measured at 780. mm Hg, when the pressure is changed to 720. mm Hg.

What Law?	Formula?	Plug in values & solve	sig fig answer w/ units

3. A gas has a volume of 91.0 ml at a temperature of 91°C. If the temperature is a reduced to 0°C and the pressure remains constant, what will be the new volume of the gas?

What Law?	Formula?	Plug in values & solve	sig fig answer w/ units

4. A gas measures 140 ml at 73°C. Find its volume at standard temperature if the pressure remains constant.

What Law?	Formula?	Plug in values & solve	sig fig answer w/ units

5. To what temperature must a sample of gas at 100°C and 560 torr be heated in order increase the pressure to 760 torr?

What Law?	Formula?	Plug in values & solve	sig fig answer w/ units

6. A sample of hydrogen exerts a pressure of 1.20 atmospheres at a temperature of 25°C. What pressure does the gas exert at 100 °C?

What Law?	Formula?	Plug in values & solve	sig fig answer w/ units

7. A gas collected when the temperature is 15°C and the pressure is 700 mm Hg measures 1220 ml. Calculate its volume at 25°C and 760 mm Hg.

What Law?	Formula?	Plug in values & solve	sig fig answer w/ units

8. A 500 mL sample of a gas at a temperature of 23°C exerts a pressure of exactly one atmosphere. What pressure does the gas occupy when the volume increases to 800mL and the temperature increases to 85 °C?

What Law?	Formula?	Plug in values & solve	sig fig answer w/ units

9. A metal canister contains a mixture of neon, argon and radon. The neon exerts a pressure of 0.42 atmospheres, the argon exerts a pressure of 0.18 atmospheres, and the total pressure in the container is 1.30 atmospheres. What is the pressure exerted by the radon gas?

What Law?	Formula?	Plug in values & solve	sig fig answer w/ units

Show all work on these problems for credit.

10. A 1.00 liter pressurized gas cylinder contains a mixture of oxygen and nitrogen. When the temperature is 25 °C, the partial pressure of oxygen is 425 torr and the partial pressure of nitrogen is 325 torr. What is the total pressure in the container at 150 °C?

11. If 35 mL of hydrogen gas exerts a pressure of 355 torr at a temperature of 15°C, what temperature CHANGE, in Celsius degrees, must take place in order for the gas to occupy 25 mL at a pressure of 800 torr?

12. What volume would be occupied by 4.55 moles of helium gas at STP?

13. How many liters of nitrogen gas are required to produce 25.0 liters of ammonia gas (NH_3) in the following reaction: $3H_{2(g)} + N_{2(g)} \rightarrow 2NH_{3(g)}$

14. What volume of oxygen is required for the complete combustion of 18.0 liters of propane, C_3H_8?

$$C_3H_{8(g)} + 5O_{2(g)} \rightarrow 3CO_{2(g)} + 4H_2O_{(g)}$$