

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

Period: \_\_\_\_\_

Seat#: \_\_\_\_\_

Charles' Law states the volume of a gas varies directly with the Kelvin temperature, assuming the pressure is constant. We use the following formulas:

$$\frac{V_1}{T_1} = \frac{V_2}{T_2}; \quad K = ^\circ\text{C} + 273$$

**Directions:** Solve the following problems (assuming constant pressure). Assume all number are 3 significant figures. Remember to show your work!

1) A sample of nitrogen occupies a volume of 250 mL at 25°C. What volume will it occupy at 95°C? 309 mL

2) Oxygen gas is at a temperature of 40°C when it occupies a volume of 2.30 Liters. To what temperature should it be raised to occupy a volume of 6.50 Liters? 885 K / 612°C

3) Hydrogen gas was cooled from 150°C to 50°C. Its new volume is 75.0 mL. What was its original volume? 98.2 mL

4) Chlorine gas occupies a volume of 25.0 mL at 300 K. What volume will it occupy at 600 K? 50.0 mL

5) A sample of neon gas at 50°C and a volume of 2.50 Liters is cooled to 25°C. What is the new volume? 2.31 L