WKS – Honors
Gay-Lussac's & Combined Gas Laws

NAME _____
Period _____ **Date** _____

Solve the following problems using Gay-Lussac's and the Combined Gas Laws. If a property is not mentioned in a problem, assume that it is held constant. Show all calculations including temperature conversions.

1) A cylinder of gas has a pressure of 4.40 atm at 25°C. At what temperature, in °C, will it reach a pressure of 6.50 atm?

2) A cylinder of compressed gas has a pressure of 4.882 atm on one day. The next day, it has a pressure of 4.690 atm at a temperature of 8°C. What was the temperature, in °C, on the first day?

3) A mylar balloon is filled with helium gas to a pressure of 107.0 kPa when the temperature is 22°C. If the temperature changes to 45°C, what will be the pressure of the helium in the balloon?

4) A sample of hydrogen gas has a volume of 65.0 mL at a pressure of 0.992 atm and a temperature of 16°C. What volume will the hydrogen occupy at 0.984 atm and 25°C?

5) A student collects 450. mL of HCl gas at a pressure of 100. kPa and a temperature of 17°C. What is the pressure when the volume of the HCl is 350. mL at 0°C?

6) A piston containing argon gas, originally in a volume of 3.50 L at 650. mmHg and –75°C is heated to 358°C and a pressure of 875 mmHg. What is the *change* in the volume of the piston?

Answers: 1) T_2 = 167°C; 2) T_1 = 20°C; 3) P_2 = 115.3 kPa; 4) V_2 = 67.6 mL; 5) P_2 = 121 kPa; 6) ΔV = 4.79 L