

# Chemistry CP

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

Combined Gas Law Worksheet

Section: \_\_\_\_\_

Standard Temperature and Pressure (STP): 0°C, 1 atm (or equivalent)

$$K = ^\circ C + 273$$

Remember to follow the general strategy:

$$\frac{P_1 V_1}{T_1} = \frac{P_2 V_2}{T_2}$$

List what you know  
Set up the problem  
Estimate and calculate

1. A sample of methane that initially occupies 850. mL at 500. Pa and 500. K is compressed to a volume of 700. mL. To what temperature will the gas need to be cooled to lower the pressure of the gas to 200. Pa?
2. A sample of carbon dioxide gas occupies 45 m<sup>3</sup> at 750 K and 500 kPa. What is the volume of this gas at STP?
3. A sample of gas occupies 75.0 mL at 97 kPa and 18°C. Calculate its volume at 105.2 kPa and 150°C.
4. A helium balloon with a volume of 410. mL is cooled from 27°C to -27°C. The pressure on the gas is reduced from 110. kPa to 25 kPa. What is the final volume of the gas?
5. A balloon of helium occupies 2.30 L at 825 mm Hg and 70°C. What is its volume at STP?
6. An 8.00 L sample of neon gas at 25°C exerts a pressure of 900 kPa. If the gas is compressed to 2.00 L and the temperature is raised to 225°C, what will the new pressure be?