NAME: **HONORS CHEMISTRY**

SECTION: Combined Gas Law Problems

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

K = oC + 273

Remember to follow the general strategy:

List what you know

Set up the problem

Estimate and calculate

Write the relevant equation, then rearrange it and show your complete setup.

1. A gas occupied 550.0 cm3 at a pressure of 99.5 kPa and a temperature of 21oC. Several days later, it was measured at a pressure of 97.8 kPa and temperature of 15oC. What volume did the gas occupy under these new conditions?
2. A 47.0 cm3 volume of nitrogen was collected at a temperature of 18oC and a pressure of 0.972 atm. What volume will the gas occupy at STP?
3. A sample of gas occupies 75.0 mL at 97.0 kPa and 18oC. Calculate its volume at 105.2 kPa and 150oC.
4. Calculate the volume of a gas at STP if 502 mL of the gas are collected at 29.7oC and 720. torr.
5. A balloon of helium occupies 6.84 L at 796 mm Hg and 65oC. What is its volume at STP?
6. An 3.25 L sample of neon gas at 23oC exerts a pressure of 850 kPa. If the gas is compressed to 1.52 L and the temperature is raised to 233oC, what will the new pressure be?

KEY

1. 548 cm3

2. 42.9 cm3

3. 1.0 x 102 mL

4. 429 mL

5. 5.79 L

6. 3100 kPa