

**Complete each of the following. Show your work and circle your final answer on all problems.**

1. a. To change a temperature expressed in degrees Celsius to a temperature on the Kelvin scale, what must be done to the Celsius temperature? \_\_\_\_\_  
b. Why must we use the Kelvin scale in gas law problems? \_\_\_\_\_  
\_\_\_\_\_
  
2. a. The volume of a sample of gas is 2.00 L when the temperature is 11.0 °C. While the pressure remains constant, the temperature is changed to a new value, which causes the volume to become 3.00 L. What was the temperature changed to?  
b. This is an example of \_\_\_\_\_ Law.
  
3. a. The volume occupied by a sample of gas is 480 mL when the pressure is 115 kPa. What pressure must be applied to the gas to make its volume become 650 mL?  
b. This is an example of \_\_\_\_\_ Law.
  
4. The volume occupied by a sample of gas is 240.0 mL when the pressure is 1.20 atm. What volume, at constant temperature, will the gas occupy when the pressure is decreased to 0.860 atm?

5. The volume of a sample of gas is 25.0 mL when the temperature is 270 K. If the temperature is changed to 30.0 °C, what will be the new volume occupied by the gas assuming that the pressure remains constant?
6. When the volume of a sample of gas is divided by the temperature of the gas, the result is 1.33 mL/K. The temperature of the gas is changed to a new value, which happens to be 411 K while the pressure is kept constant. What volume does the sample of gas occupy at 411 K?
7. When the pressure exerted by a sample of gas is multiplied by the volume occupied by the sample, the result of this multiplication is  $1.60 \times 10^5$  mm Hg·mL. The pressure exerted by the sample changes to a new value, which happens to be 750 mm Hg. What volume will the sample occupy at this pressure, assuming that temperature remains constant?