Name: Date: Period:

Practice: Charles Law

1. A gas occupies 11.2 L at 1.00 atm. What is the new pressure if the volume expands to 15.0 L?
2. The temperature inside my refrigerator is about 4ºC. If I place a balloon in my fridge that initially has a temperature of 22 ºC and a volume of 0.5 L, what will the volume of the balloon be after it is fully cooled?
3. A soda bottle is flexible enough that the volume of the bottle can change even without opening it. If you have an empty soda bottle (volume of 2 L) at room temperature (25 ºC), what will the new volume be if the temperature is decreased to -4 ºC?
4. Some students believe that teachers are full of hot air. If I inhale 2.2 L of gas at a temperature of 291 K and it heats to a temperature of 38 ºC in my lungs what is the new volume of the gas?
5. I have a car with an internal volume of 12,000 L at 1.0 atm. If I drive my car into the river and it explodes, what will the new volume of the gas be if the new pressure is 1.4 atm?
6. How hot will a 2.3 L balloon have to get to expand to a volume of 400 L? Assume that the initial temperature of the balloon is 25 ºC.
7. I have made a thermometer which measures temperature by the compression and expansion of a gas in a piston. I have measured that at 373 K, the volume of the piston is 20 L. What is the temperature outside in **Celsius** if the piston has a volume of 15 L?
8. During the day, a 20 L cylinder is at a temperature of 27 ºC. At night, the volume decreases to 18 L. What is the temperature at night? Give your answer in both K and ºC.