Name:_____ Period:_____

8 Chemistry

Homework: Gas Laws

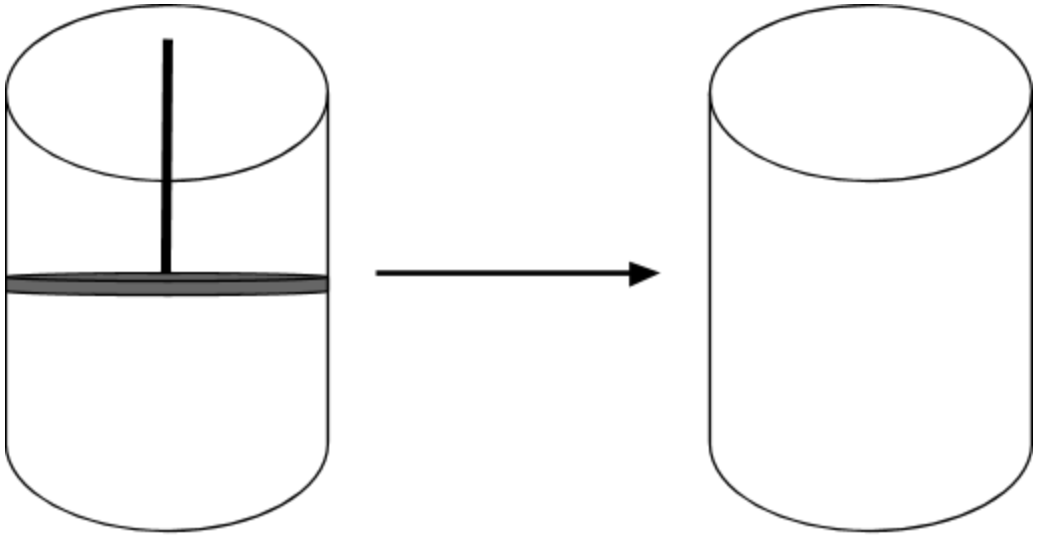
1. The doctor tells you that your temperature is 40 °C. Are you sick? Show your work and explain your answer.

2. What are the freezing and boiling temperatures of water in degrees Celsius, kelvins, and degrees Fahrenheit?

3. The temperature on the surface of Venus is 736 K. Convert this temperature into degrees Fahrenheit and degrees Celsius. Compare the temperature of Venus to that of Earth.

4. A gas sample in a cylinder has a volume of 620 mL at 293 K. The chamber contains a movable piston, so the volume can change freely.
    a. What will the volume of the gas be if the container cooled to 325 K?

    b. Draw a *before* and *after* particle model of the piston. Use the figures below to aid (you will need to adjust the volume in the after model). Make sure to create a key and label all parts of the model.



Name:_____ Period:_____

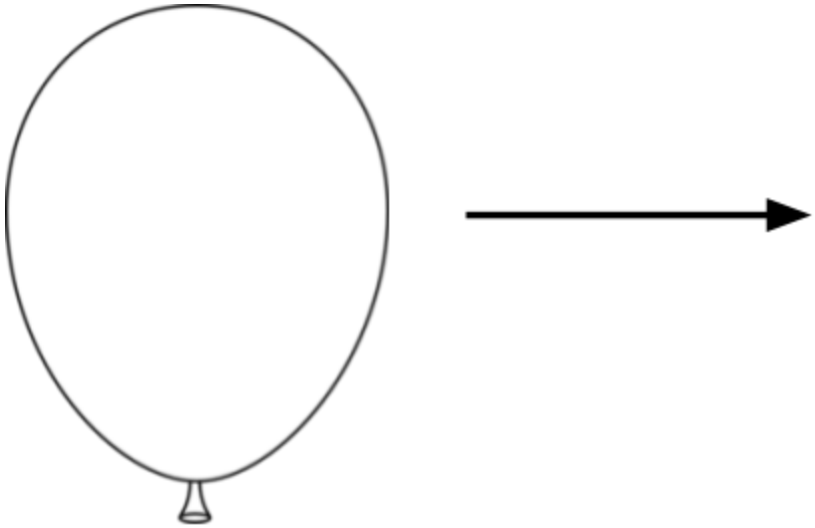
5. A sample of gas in a cylinder has a volume of 980 mL at a temperature of 27 °C. If you allow a piston to move while you heat the gas, what will the volume of the gas be at 130 °C?

6. Imagine that you have a huge helium balloon for a parade. Around noon, it is 27 °C when you fill the balloon with helium gas to a volume of 25,000 L. Later in the day the temperature drops to 15 °C.
   a. What was the proportionality constant, $k = V/T$, at the beginning of the day?

   b. Calculate the volume of the balloon when the temperature has dropped to 22 °C.

   c. What will the proportionality constant, $k = V/T$, be at the end of the day when the temperature is 15 °C? Explain your answer.

   d. Draw a particle model of the balloon at the beginning of the day and at the end of the day.



Beginning of Day

End of Day
(you will need to draw the balloon bigger or smaller based off of your calculations)