

## Review - Section 2A

Answer every question. For the questions that require math, show your work.

1) As you fly up into the air in a plane, the air pressure decreases. Explain, in terms of Boyle's law, what would happen to a balloon if you fly in a plane from the ground to the clouds, and from the clouds down to the ground.

2) What would happen if you completely inflated a balloon in a warm store and then took outside on a cold day. Answer in terms of pressure and temperature.

3) Explain why the pop can "crunched" in the lab in the beginning of the chapter. Remember, you boiled a little water inside the can and then transferred it immediately to a bucket of ice water.

4) A sample of neon occupies a volume of 420 mL at 25.0 °C. What will be the volume of the neon when the temperature is lowered to -14.0 °C. Assume the pressure and number of moles is held constant.

5) A cylinder with a movable piston contains 4.30 liters of air at a pressure of 1.1 atm. A change to what volume will result in a pressure of 0.55 atm in the cylinder? Assume constant temperature.

6) If the pressure in a 4.36 liters container of oxygen is 0.92 atm, what would the pressure be on the same mass of oxygen in a 3.20 liter container? Assume constant temperature.

7) A gas occupies a volume of 215 mL at 220. K. What volume will it occupy at 320 K? Assume constant pressure.

8) A 2.5 liter sample of sulfur hexafluoride gas is originally produced at 32.0 °C and 4 atm. What volume will it have at 2 atmospheres and 27 °C?

9) A gas is at a temperature of 65 °C and a volume of 0.75 L. What will be the volume of the gas if it is cooled 15 °C? Assume constant pressure.

10) A sample of gas in a 5.0 L container has a temperature of 12 °C. If the volume of the gas is decreased to a 4.0 liter space, what will be the new temperature?

11) A sample of methane gas (CH<sub>4</sub>) was placed in a 30.0 L container at 273K and 1 atm (STP). Calculate its new pressure if the temperature is reduced to 250 K and the volume goes down to 17.0 L.

12) A rigid gas cylinder with a volume of 49 liters is filled with propane gas at 31 °C and has a pressure of 6.0 atmospheres. If the gas were released to STP conditions, what would the new volume be?

13) A gas is trapped in a balloon at 15 °F. What is that temperature in Celsius and in Kelvin?

14) Fill in the chart below that shows the relationships between properties of the gases:

Property 1	Change	Property 2	Change	Relationship
Pressure	↓	Volume		
Pressure	↓	Temperature		
Volume	↓	Temperature		