**Chemistry**

**Gas Laws Practice Problems: NAME: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

|  |  |
| --- | --- |
| **Volume** | **Temp.** |
| 91.6 | 237 |
| 106.7 | 282 |
| 125.2 | 337 |
| 167.1 | 462 |
| 323.0 | 437 |

1. Does the data to the right show a direct or inverse relationship?

|  |  |
| --- | --- |
| **Pressure** | **Temp.** |
| 226 | 226 |
| 273 | 273 |
| 297 | 297 |
| 347 | 347 |
| 226 | 226 |

1. Does the data to the right show a direct or inverse relationship?
2. A sample of a gas has a volume of 150 mL when its pressure is 0.947 atm. What will the volume of the gas be at a pressure of 0.987 atm, if the temperature remains constant?
3. What happens to the volume of a gas during compression?
4. You decide to climb to the top of the tallest mountain, Mt. Everest. Before you are about to leave on your epic journey a friend gives you a balloon that was inflated to 800mL at sea level, where the pressure is 760 mmHg. You climb up to the top of Mt. Everest, 29,028ft above sea level, which has an average atmospheric pressure of 221 mmHg. What is the volume of the balloon at the top of Mt. Everest?
5. A sample of a gas has a pressure of 3.00 atm at 298.15K. What would the gas pressure be at 325.15K, if the volume remains constant?
6. During the day at 300.15K a cylinder with a sliding top contains 5atm of air. At night the temperature drops to 250K, what is the new pressure in the container when the temperature drops?
7. A sample of a gas occupies a volume of 752 mL at 298.15K. What volume will the gas occupy if the temperature increases to 323.15K, if the pressure remains constant?
8. A 113L sample of helium at 300.15K is warmed to 351.15K. Calculate the new volume of the helium gas.
9. On all aerosol cans you see a warning that tells you to keep the can away from heat because of the danger of explosion. What is the potential volume of the gas contained in a 0.5L can at 298.15K if it were heated to 327.15K?
10. If you inflate a balloon to a size of 8.0 L inside where the temperature is 296.15K, what will be the new size of the balloon when you go outside where it is 276.15K?
11. A bicycle tire is filled with air to a pressure of 100. psi at a temperature of 272.15K. Riding the bike on asphalt on a hot day increases the temperature of the tire to 331.15K. What is the tire pressure if the tire does not stretch?