Simple Gas Law NAME\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Worksheet Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Period\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. A gas has a volume of 4 liters at 50 °C. What will its volume be at 100 °C?
2. A gas has a volume of 39 liters at STP. What will its volume be at 4 atm and 25 °C?
3. A gas has a volume of 300 ml at 300 mmHg. What will its volume be if the pressure has changed to 500 mmHg?
4. The gases in a hair spray can are at a temperature of 27 °C and a pressure of 30 psi (lbs/in2), If the can reached a pressure of 90 psi the can will explode. To what temperature must the gases be raised to in order for the can to explode? It’s a can, so assume constant volume.
5. A metal tank contains oxygen, helium and nitrogen. If the partial pressures of the gases are 35 atm O2, 5 atm N2 and 25 atm of He, what is the total pressure in the tank?
6. A gas has a volume of 460 ml at 500 mmHg. What will the volume be at 1.2 atm?
7. A gas has a volume of 350 ml at 45 °C. If the volume changes to 400 ml, what is the new temperature? Answer in °C.
8. In the distant future, a backup oxygen tank reads 900 mmHg while on a boat, where the temperature is 27°C. When a diver dives to the bottom of an unexplored methane lake on a recently discovered moon of Neptune, the temperature will drop to -183 °C. What will the pressure in the tank be at that really low temperature?
9. 400 ml of a gas is contained at 300 mmHg and 0 °C. What will its volume be at 140 mmHg and 10 °C?
10. Blast furnaces give off many unpleasant and unhealthy gases. If the total pressure is 0.99 atm, the partial pressure of carbon dioxide is 0.05 atm and the partial pressure of hydrogen sulfide is 0.02 atm, what is the partial pressure of the remaining gas?
11. A gas has a volume of 5 liters at 3 atm. To expand to a volume of 7500 ml, what will the new pressure have to be?
12. 500 ml of a gas is at STP. The volume changes to 560 ml and the temperature changes to 20 °C, what will the new pressure be?
13. A sample of hydrogen gas is collected over water at room temperature (about 22 C) and has a pressure of 790 torr. What is the pressure of the dry hydrogen?