Name: _____ Period: _____

States of Matter and Gas Laws Review Sheet

1) What would the temperature of a gas be if a 0.268 mole sample occupied a volume of 7290 mL at a pressure of 1.83atm?

2) What would be the volume (in mL) of an ideal gas if a 0.245 mole sample had a temperature of 20°C at a pressure of 988.5 mm Hg?

3) A gas takes up a volume of 17 liters, has a pressure of 2.3 atm, and a temperature of 299 K. If I raise the temperature to 350 K and lower the pressure to 1.5 atm, what is the new volume of the gas?

4) What would be the pressure if a 0.753 mole sample of carbon dioxide gas occupied a volume of 8110 mL at a temperature of 82.5°C?

5) A gas that has a volume of 28 L, a temperature of 45 ^{0}C, and an unknown pressure, has its volume increased to 34 L and its temperature decreased to 35 ^{0}C. If the pressure measured after this change is 2.0 atm, what was the original pressure of the gas?

6) If 4.77 moles of a gas at a pressure of 5.4 atm has a volume of 120 mL, what is the temperature?

7) If I initially have a gas with a pressure of 845 kPa and a temperature of 35.0^0 C and I heat it an additional 230 degrees, what will the new pressure be? Assume the volume of the container is constant.

8) My car has an internal volume of 2600 liters. If the sun heats my car from a temperature of 20^0 C to a temperature of 55^0 C, what will the pressure inside my car be? Assume the pressure was initially 760 mm Hg.

9) How many moles of gas are in my car in problem #8?

10) A sealed canister contains three gasses. Gas A has a partial pressure of 1.4 atm. Gas B has a partial pressure of 0.44 atm. If the total pressure of the gasses is 3.75 atm, what is the partial pressure of gas C?

11) Which of the soda containers below would be most likely to spew soda if you opened it? Show work to explain.

T = 22.4ºC
P = ?
V = 354 ml
n = 1.66 mol CO_2

T = 46.7°C
P = ?
V = 2.0 L
n = 2.33 mol CO_2

T = 19.3ºC
P = ?
V = 244 ml
n = 1.83 mol CO_2

12) Explain why a scuba diver might die if he/she rose too quickly to the surface after a deep dive.

13) A bicycle tire is filled with air to a pressure of 750.9 mm Hg at a temperature of 19°C. Riding the bike on a hot Texas day increases the temperature of the tire to 58°C. The volume of the tire increases by 4.0%. What is the new pressure in the bicycle tire?