Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period: \_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Conversion Practice:**

1) 15 atm = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ mmHg

2) 6432 kPa = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ torr

3) 2293 mmHg = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ atm

4) 5349 torr = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_kPa

5) .52 atm = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ kPa

6) 132 °C = \_\_\_\_\_\_\_\_\_\_\_\_\_\_ K

7) 15 °C = \_\_\_\_\_\_\_\_\_\_\_\_\_\_ K

8) -34 °C = \_\_\_\_\_\_\_\_\_\_\_\_\_\_ K

9) 480 °C = \_\_\_\_\_\_\_\_\_\_\_\_\_\_ K

10) -10 °C = \_\_\_\_\_\_\_\_\_\_\_\_\_\_ K

**Combined Gas Law Problems:**

1) Synthetic diamonds can be manufactured at pressures of 6.00 x 104 atm. If we took 2.00 liters of gas at 1.00 atm and compressed it to a pressure of 6.00 x 104 atm, what would the volume of that gas be?

2) The highest pressure ever produced in a laboratory setting was about 2.0 x 106 atm. If we have a

1.8 x 10-5 liter sample of a gas at that pressure, then release the pressure until it is equal to 0.275

atm, what would the new volume of that gas be?

3) A man heats a balloon in the oven. If the balloon initially has a volume of 0.4 liters and a temperature of 20 0C, what will the volume of the balloon be after he heats it to a temperature of 250 0C?

4) How hot will a 2.3 L balloon have to get to expand to a volume of 400 L? Assume that the initial temperature of the balloon is 25 0C.

5) If I initially have a gas at a pressure of 12 atm, a volume of 23 liters, and a temperature of 200 K, and then I raise the pressure to 14 atm and increase the temperature to 300 K, what is the new volume of the gas?

6) A gas that has a volume of 28 liters, a temperature of 45 0C, and an unknown pressure has its volume increased to 34 liters and its temperature decreased to 35 0C. If I measure the pressure after the change to be 2.0 atm, what was the original pressure of the gas?

7) If I have 21 liters of gas held at a pressure of 78 atm and a temperature of 900 K, what will be the volume of the gas if I decrease the pressure to 45 atm and decrease the temperature to 750 K?

8) I have an unknown volume of gas held at a temperature of 115 K in a container with a pressure of 60 atm. If by increasing the temperature to 225 K and decreasing the pressure to 30 atm causes the volume of the gas to be 29 liters, how many liters of gas did I start with?

9) If I have 17 liters of gas at a temperature of 67 0C and a pressure of 88.89 atm, what will be the pressure of the gas if I raise the temperature to 94 0C and decrease the volume to 12 liters?

10) Atmospheric pressure on the peak of Mt. Everest can be as low as 150 mm Hg, which is why climbers need to bring oxygen tanks for the last part of the climb. If the climbers carry 10.0 liter tanks with an internal gas pressure of 3.04 x 104 mm Hg, what will be the volume of the gas when it is released from the tanks?