**Chemistry Unit 2 Matter Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Pressure-Temperature Worksheet**

There are many different units of pressure used in chemistry. This is an unfortunate situation, but we cannot change it. You must be able to use all of them. Here they are:

1. atmospheres (symbol = atm)
2. millimeters of mercury (symbol = mm Hg) also called torr
3. inches of mercury (symbol = in. Hg)
4. pounds per square inch (symbol = psi)
5. kilopascals (symbol = kPa)

You must also be able to use both Celsius and Kelvin temperatures.

K = °C + 273

°C = K - 273



1 atm = 760.0 mm Hg = 760.0 torr = 29.92 in. Hg = 14.69 psi = 101.3 kPa

**Practice Problems. Show your work. Round answers to the correct number of sigfigs and include units. Circle your answers.**

Convert these to atmospheres:

1. 340 torr
2. 30.53 in Hg
3. 540 mm Hg
4. 21 psi

Convert these to mm Hg:

1. 1.7 atm
2. 9.1 psi
3. 28.59 in. Hg
4. 740 torr

Convert these to torr:

1. 0.8 atm
2. 810 mm Hg
3. 241 kPa
4. 29.92 in. Hg

Convert these to in. Hg:

1. 0.8 atm
2. 810 mm Hg
3. 19.2 psi
4. 115 kPa

Convert degrees C to Kelvin

1. 23 deg C
2. -100 deg C
3. 450 deg C
4. 200 deg C

Convert Kelvin to degrees C

1. 373 K
2. 0 K
3. 100 K
4. 5000 K



1) What is the critical temperature of compound X? \_\_\_\_\_\_\_\_\_\_\_

2) If you were to have a bottle containing compound X in your closet, what phase would it most likely be in? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3) At what temperature and pressure will all three phases coexist? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4) If I have a bottle of compound X at a pressure of 45 atm and temperature of 100° C, what will happen if I raise the temperature to 400° C? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

5) Why can’t compound X be boiled at a temperature of 200° C?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

6) If I wanted to, could I drink compound X? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_