**Phase Diagram of Water Worksheet**

1. a. This is a phase diagram for what compound?

b. What is the formula for this compound?

2. Name the x-axis and y-axis in the phase diagram.

3. In what units are these two variables measured on the phase diagram?

4. Name the three states of matter separated by solid lines on the phase diagram.

5. Trace over the solid line separating Solid / Gas in red. Trace over the solid line separating Liquid / Gas in blue and trace over the solid line separating Solid / Liquid in green.

6. The process (change of state) of ***condensation*** occurs when a gas changes into a liquid. Draw and label a blue arrow going across the solid line showing the direction of *condensation*. The process of ***boiling*** occurs when a liquid changes into a gas. Draw and label a blue arrow across the solid line showing the direction of *evaporation*.

7. The process of ***freezing*** occurs when a liquid changes into a solid and the reverse process is ***melting***. Draw and label green arrows showing these two phase changes.

8. The process of ***deposition*** occurs when a gas changes into solid and the reverse process is ***sublimation***. Draw and label red arrows showing these two phase changes.

9. Circle on the phase diagram where the three solid lines meet. What is this junction called?

10. Use the phase diagram to determine what state of matter H2O isat -10C and 700 mm Hg.

10. Use the phase diagram to determine what state of matter H2O isat 50C and 750 mm Hg.

11. Use the phase diagram to determine what state of matter H2O isat 150C and 50 mm Hg.

12. At a constant 760 mm Hg, list all the states of matter and processes (changes of state) that H2O undergoes when heated

from -10C to 110C.

13. At a constant 2 mm Hg, list all the states of matter and processes that H2O undergoes when cooled from

50C to -50C.

14. At a constant -10C, list all the states of matter and processes that H2O undergoes when depressurized

from 5 mm Hg to 0 mm Hg.

15. At 0C, explain all the states of matter and processes that H2O undergoes when pressurized from 1 atm to 80 atm.