**Thermodynamics Remediation**

1. During a phase change, the temperature of a substance \_\_\_\_.
2. Refer to graph A. During which line segment does the substance change from a solid to a liquid?
3. Refer to graph A. During which portion of the graph is the temperature of liquid water increasing?
4. What happens to the energy and temperature during a phase change?
5. Refer to graph B. What is the temperature and pressure at which this substance can be found at all three states of matter?

Graph A

1. Refer to graph B. If you are 1.50 atm and 400 oC and decrease the pressure to 0.25 atm, what kind of phase change is occurring?
2. On a phase diagram, what does the critical point represent? Circle the critical point on graph B.



**Graph A**

**Graph B**

1. What is the difference between an endothermic and exothermic reaction. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. While melting, entropy \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ .
3. An Endothermic reaction would feel \_\_\_\_\_\_\_to the touch.

**Calculate the answer to the following problems**

1. How much heat is required to vaporize 541 g of liquid water at 100oC?
2. How much energy is absorbed when 25 g of ice melts at 0 oC?
3. During a laboratory experiment, 25 grams of water at 100oC is transformed into steam at 102oC. How much heat energy is needed to completely change the state of the water?
4. How much energy is absorbed when 8 g of ice at -10oC is heated and changes to water at 50 oC?
5. What is the amount of heat required to raise the temperature of 100.0 g of zinc from 5 0C to 20 0C? (specific heat of zinc = 0.388 )
6. What is the substance if 1347.5 J are required to raise the temperature of a 350-g sample by 10 0C?
7. When 50 g of an alloy, at 20 0C, are dropped into 100.0 g of water, the alloy absorbs 1050 J of heat. If the final temperature of the alloy is 38 0C, what is its specific heat?
8. What is the amount of heat required to raise the temperature of 100.0 g of aluminum from 5 0C to 80 0C? (specific heat of aluminum = 0.21 )