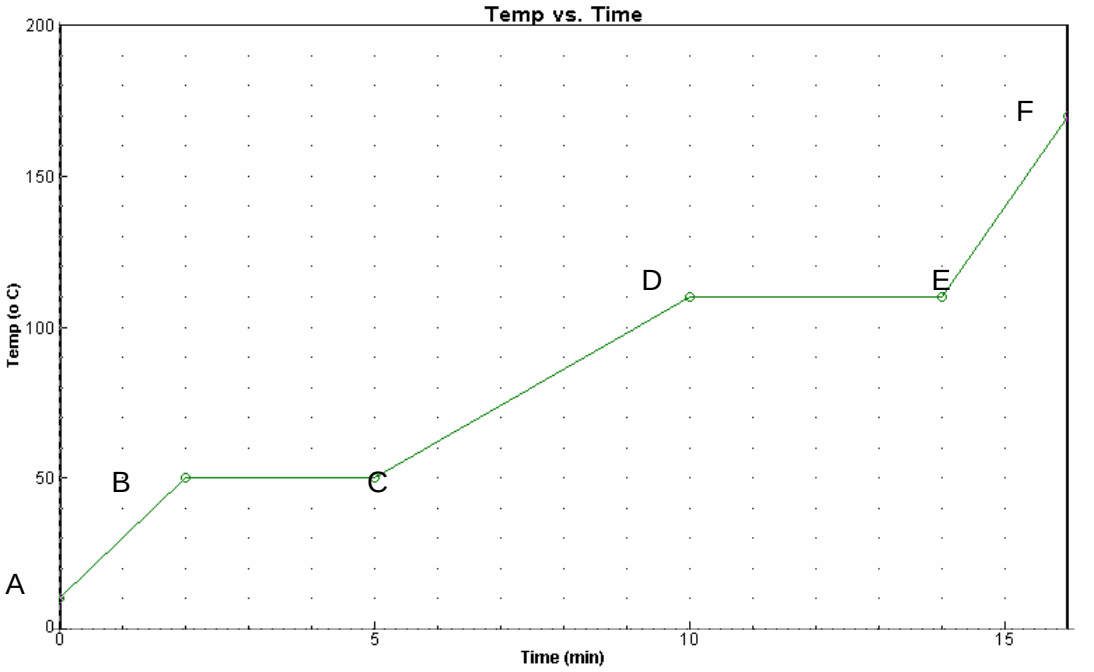
Name:
Date:
Period:

Heating and Cooling Curves



Use the graph above to complete the following paragraph.

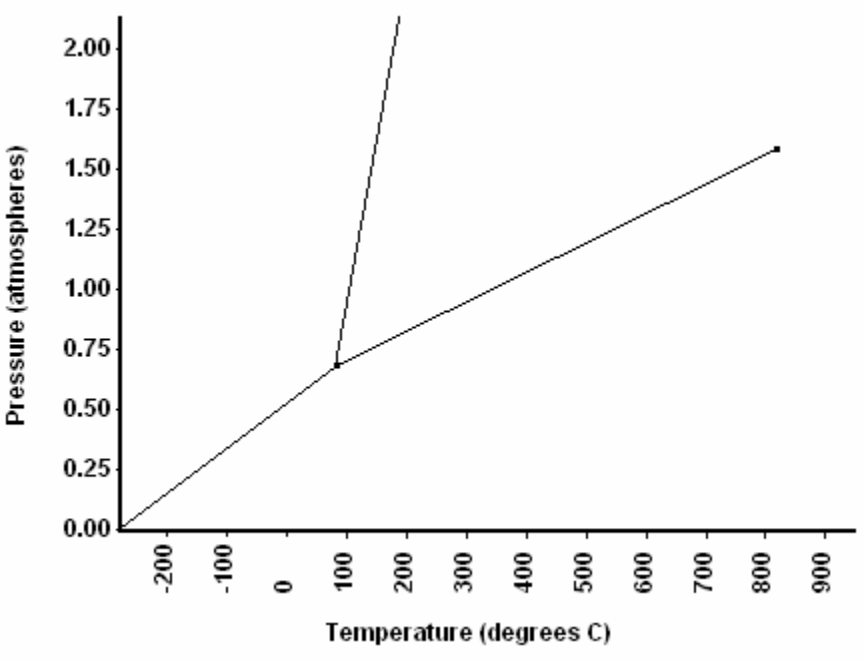
At the start of the observations, point A, the substance exists as a(n) _____. The temperature at this point is ___ degrees. As heat is added, the temperature of the substance rises at a constant rate for ___ minutes. At point B the temperature is ___ degrees. The solid begins to _____. The temperature remains _____ until the change from _____ to _____ is complete. It has taken ___ minutes to add enough heat to complete the phase change. From point C to point D on the graph, the substance is in the _____ state. Its temperature rises at a constant rate to ____ degrees. The temperature remains _____ while the material changes to the _____ state. This change requires ___ minutes. The heat required to vaporize the liquid is _____ than the heat required to melt the solid. At point E the substance exists as a(n) _____. The melting point of the material is ___ degrees while the boiling point is ____ degrees.

The gaseous material is now allowed to cool and the same type of graph is made from the data collected. During this change heat is released. Therefore, this change is ___thermic. The flat parts of this graph will occur at the _____ temperatures as the graph above. The amount of heat released during condensation will be the same as the amount _____ during vaporization. The amount of heat released as the substance freezes will be the same as the amount absorbed when the substance _____.

If a larger mass of material were heated to make the graph above the flat spots would be _____ than shown above. If heat were added more slowly to the material, the slope of the angled line would be _____.

Phase Diagram

Refer to the phase diagram below when answering the questions on this worksheet:



1) What is the normal freezing point of this substance? _____

2) What is the normal boiling point of this substance? _____

3) In order for sublimation to occur, what would the temperature and pressure range need to be?

4) If I had a quantity of this substance at a pressure of 1.25 atm and a temperature of 300^0 C and lowered the pressure to 0.25 atm, what phase transition(s) would occur?

5) At what temperature do the gas and liquid phases become indistinguishable from each other? _____

6) If I had a quantity of this substance at a pressure of 0.75 atm and a temperature of -100^0 C, what phase change(s) would occur if I increased the temperature to 600^0 C? At what temperature(s) would they occur?