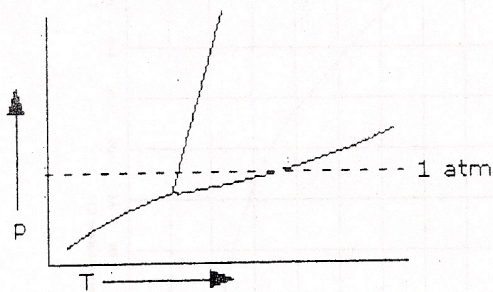
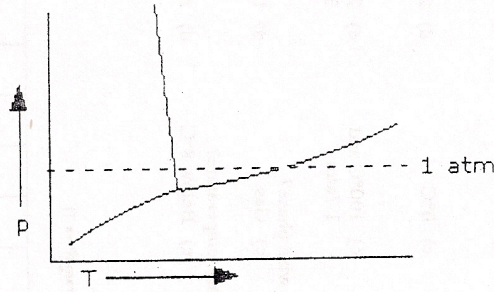


Phase Diagram Questions:

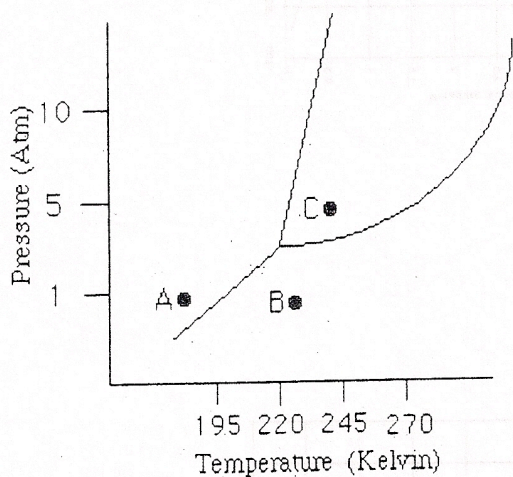


A



B

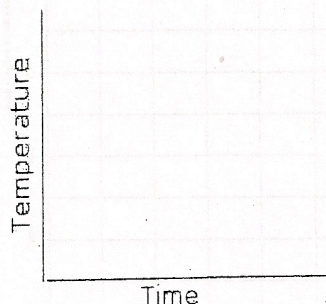
- 1) Which of the above diagrams represents the phase diagram of water?
- 2) Label the three phases of each substance as solid, liquid, or gas.
- 3) For the diagram of water, label the temperatures at the two intersections of the 1 atm line and the phase boundaries.



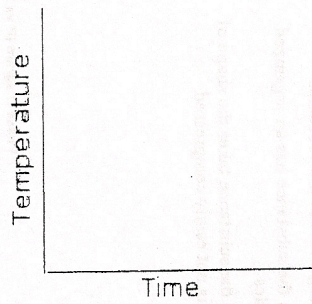
- 4) Name the following processes that refer to the phase diagram to the left.

A going to B = _____
 B going to C = _____
 C going to A = _____
 A going to C = _____
 C going to B = _____
 B going to A = _____

- 5) What are two ways of going from point B to the solid phase?
- 6) Why is it incorrect to say that the boiling point of a substance is 100°C ?
- 7) Sketch a heating curve for the previous phase diagram for a chunk of the solid being heated at 1 atmosphere of pressure. How would the heating curve look different if it were for heating at 5 atm of pressure?



1 atm



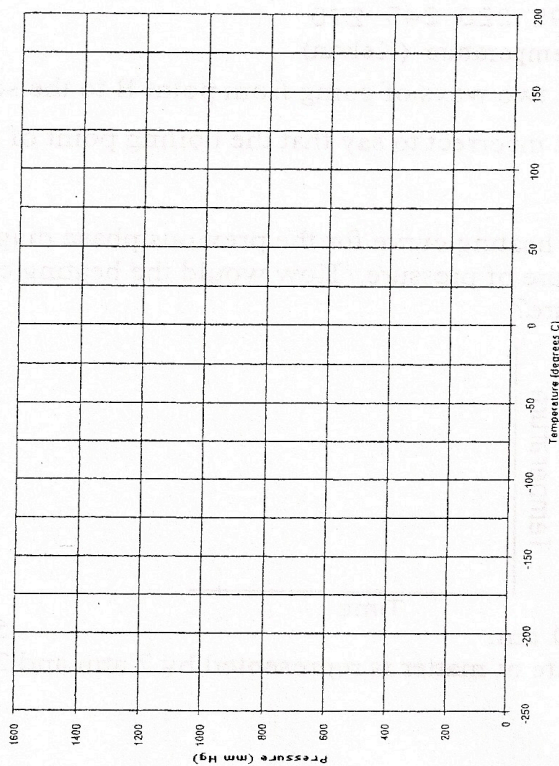
5 atm

- 8) What state of matter is represented by 7 atm and 270K on the previous phase diagram?

Phase Diagram Graphing:

- 1) Construct a phase diagram on the following graph with the following characteristics
 - The substance should have a critical point at 160°C and 1200 mm Hg
 - The substance should sublime at 210°C and 180 mm Hg
 - The substance should freeze at 100°C and 1400 mm Hg
 - The substance should have a triple point at 120°C and 650 mm Hg
 - The normal boiling point of the substance should be at 90°C
- 2) Label each section of the graph with its phase.
 - _____
 - _____
 - _____
 - _____
- 3) Interpret your newly constructed graph by finding points that fit the following descriptions:
 - A point at which gas and liquid are at equilibrium _____
 - The normal melting point of the substance _____
 - A point in which the substance has an organized lattice of molecules _____
 - A point at which the substance takes the shape of its container but is not easily compressed _____

Phase Diagram (P vs T)



Reading Phase Diagrams:

Use the phase diagram below to answer the following questions.

- 1) The critical temperature is
 - a) -80°C
 - b) 0°C
 - c) 28°C
 - d) 180°C
- 2) The normal melting point in °C is about
 - a) -20°C
 - b) -18°C
 - c) 0°C
 - d) 20°C
- 3) The substance will sublime at
 - a) -60°C and 0.4 atm
 - b) -20°C and 0.8 atm
 - c) 100°C and 1.7 atm
 - d) 20°C and 3.4 atm
- 4) At 80°C and 2.0 atm, this substance is in what phase?
 - a) Solid
 - b) Liquid
 - c) Gas
 - d) Plasma
- 5) The substance will boil at 2.5 atm and what temperature?
 - a) At 8°C
 - b) At 135°C
 - c) Below 8°C
 - d) Above 135°C

Phase Diagram (P vs T)

