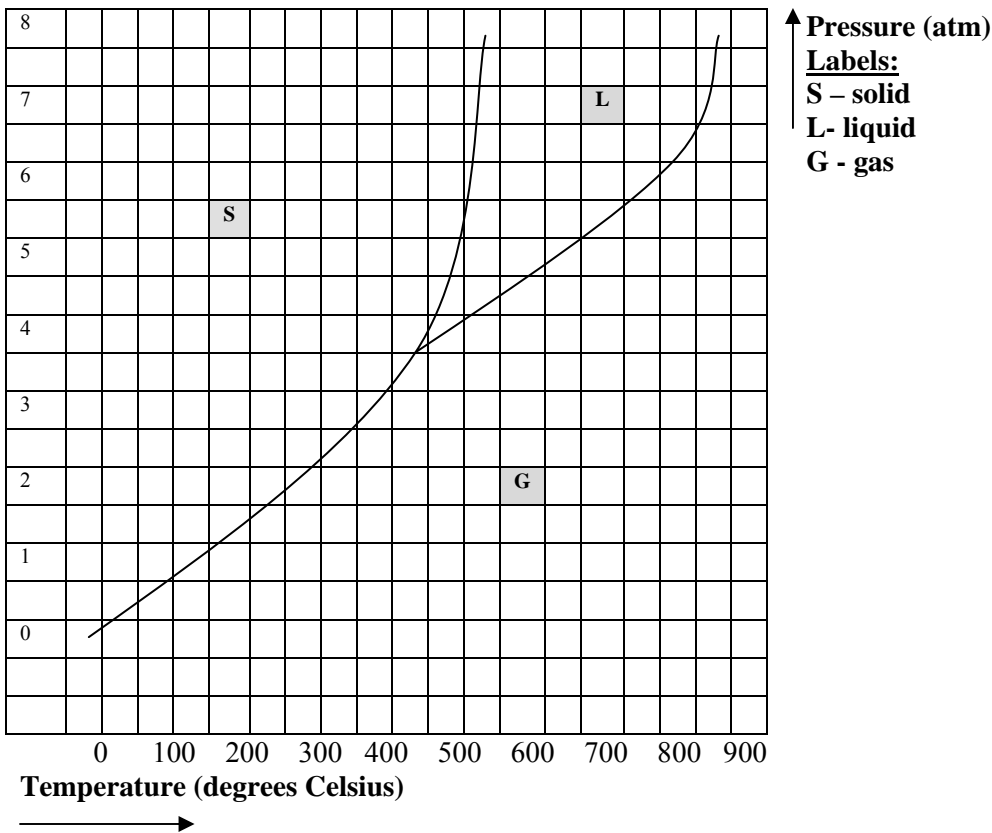


Phase Diagram Worksheet

Name _____ Date _____

(#1) For each of the questions on this worksheet, refer to the phase diagram for mysterious compound X.



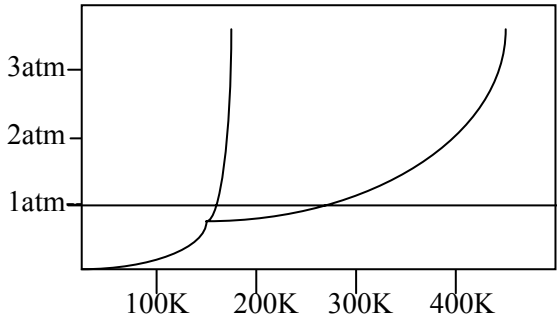
- (1) If you were to have a bottle containing compound X in your closet, what phase would it most likely be in? _____
- (2) At what temperature and pressure will all three phases coexist? _____
- (3) If you have a bottle of compound X at a pressure of 3 atm and temperature of 100⁰C, what will happen if you raise the temperature to 400⁰C? _____
- (4) Why can't compound X be boiled at a temperature of 200⁰C?

- (5) Is it possible to drink compound X?

- (6) What is the critical temperature of compound X? _____

(#2) On the phase diagram below :

(a) Label areas of Gas, Liquid, Solid



Find the following data:

	T, ⁰ K	P, atm
Triple point		
Normal melting point		
Normal boiling point		
Critical point		

(b) What changes in phase will occur if this substance is slowly compressed at constant temperature, from 0.01 atm to 3.5 atm at:

- ▶ 100.K _____
- ▶ 150. K _____
- ▶ 300.K _____
- ▶ 500.K _____

(c) What are the necessary conditions for this material to sublime?

(#3) Construct the phase diagram for a substance on the axes below based on the following data: (It need NOT be to scale)

	T, ⁰ K	P, atm
Triple point	55 K	0.10 atm
Normal melting point	68 K	
Normal boiling point	183 K	
Critical point	218 K	50 atm

- ▶ **Label:** S, L, G areas
- ▶ **Lines of equilibrium between solid and gas, liquid and gas, solid and liquid.**

