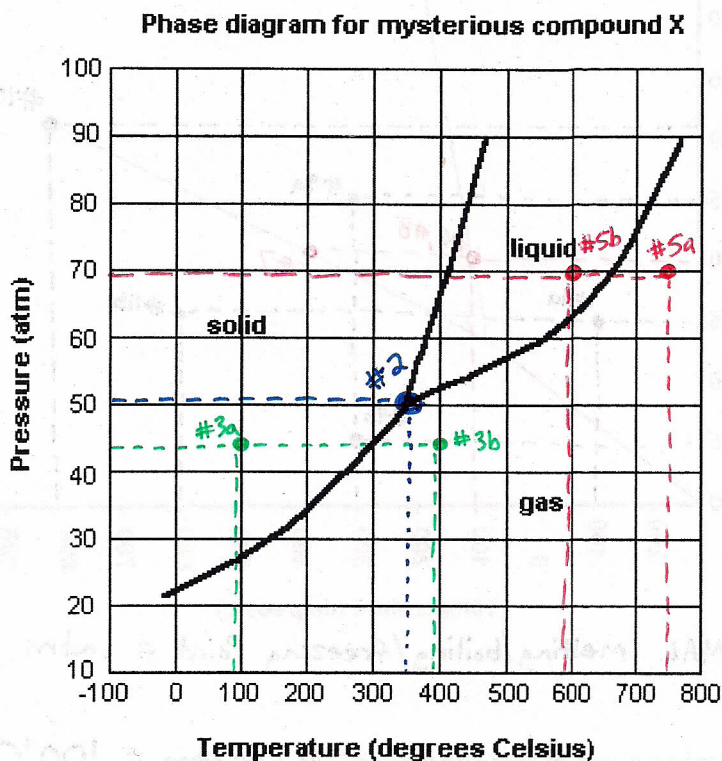


Extra Practice: Phase Diagrams #2

Name: _____



For each of the questions below, refer to the phase diagram shown above 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?

Gas \rightarrow High Pressure & Temp

- 2) At what temperature and pressure will all three phases coexist?

Triple Point (T) = 350°C @ 50 atm

- 3) If I have a bottle of compound X at a pressure of 45 atm and temperature of 100°C, what will happen if I raise the temperature to 400°C? (Specify phase change.)

Sublime into gas from solid

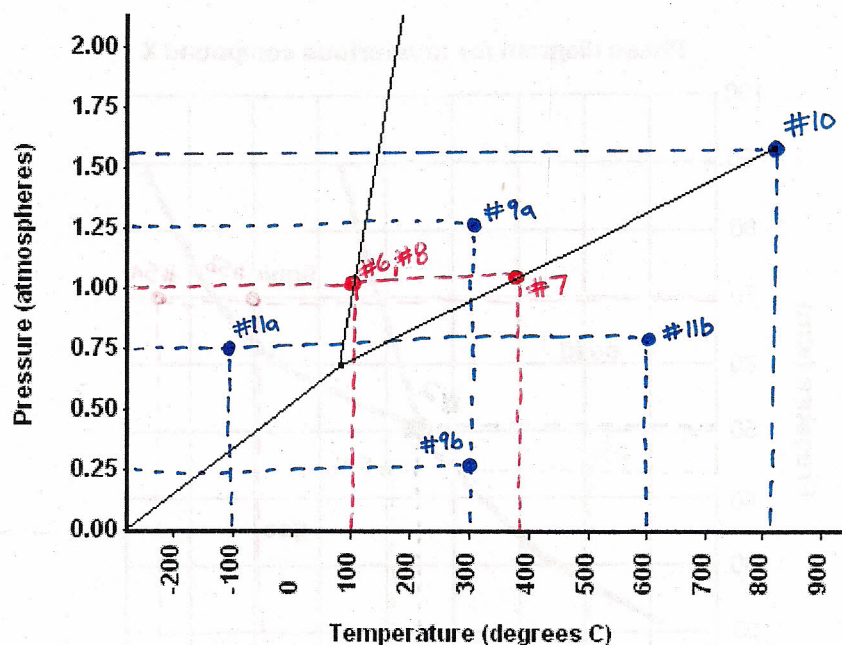
- 4) If compound X is nontoxic, would you be able to drink it in the liquid form?

No, it would be too hot!

- 5) If I have a bottle of compound X at a pressure of 70 atm and temperature of 750°C, what will happen if I lower the temperature to 600°C? (Specify phase change.)

Condense from gas to liquid

Refer to the phase diagram below when answering the following questions.



* NORMAL melting/boiling/freezing Point = 1 atm

6) What is the normal freezing point of this substance? @ 1.00 atm = 100°C

7) What is the normal boiling point of this substance? @ 1.00 atm = ~ 375°C

8) What is the normal melting point of this substance? @ 1.00 atm = 100°C

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

Boil/Vaporize @ ~ 0.87 atm
from liquid to gas

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

Critical Point (C) =
~ 825°C @ ~ 1.56 atm

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

Melt @ ~ 100°C, then boil @ ~ 160°C