

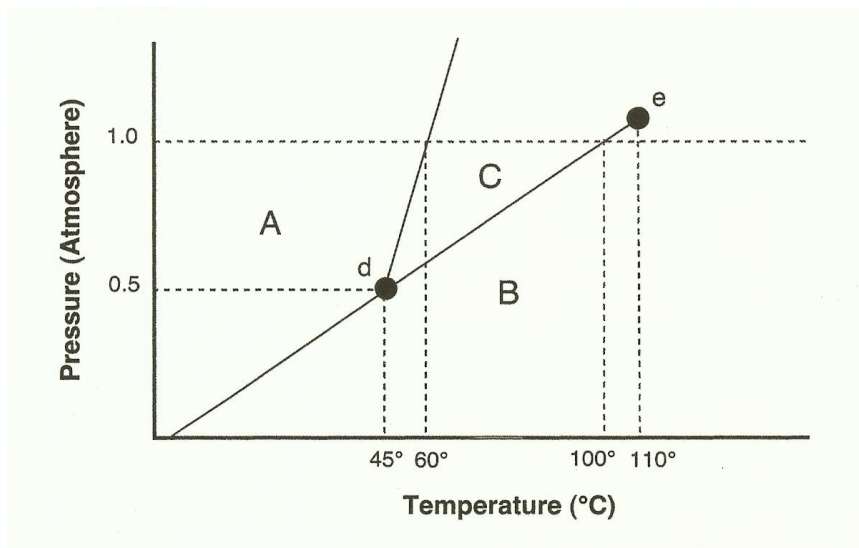
Name \_\_\_\_\_

Period \_\_\_\_\_

### PHASE DIAGRAM WORKSHEET

#### Part A – Generic Phase Diagram.

Answer the questions below in relation to the following generic phase diagram.



1. Which section represents the solid phase? \_\_\_\_\_
2. What section represents the liquid phase? \_\_\_\_\_
3. What section represents the gas phase? \_\_\_\_\_
4. What letter represents the triple point? \_\_\_\_\_

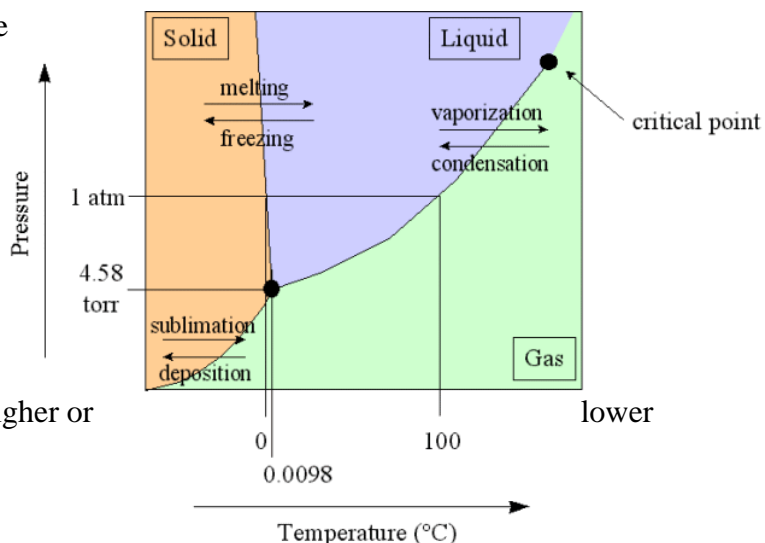
In your own words, what is the definition of a triple point?

5. What is this substance's normal melting point, at 1 atmosphere of pressure? \_\_\_\_\_
6. What is this substance's normal boiling point, at 1 atmosphere of pressure? \_\_\_\_\_
7. Above what temperature is it impossible to liquefy this substance, no matter what the pressure? \_\_\_\_\_
8. At what temperature and pressure do all three phases coexist? \_\_\_\_\_
9. At a constant temperature, what would you do to cause this substance to change from the liquid phase to the solid phase? \_\_\_\_\_
10. What does sublimation mean? \_\_\_\_\_

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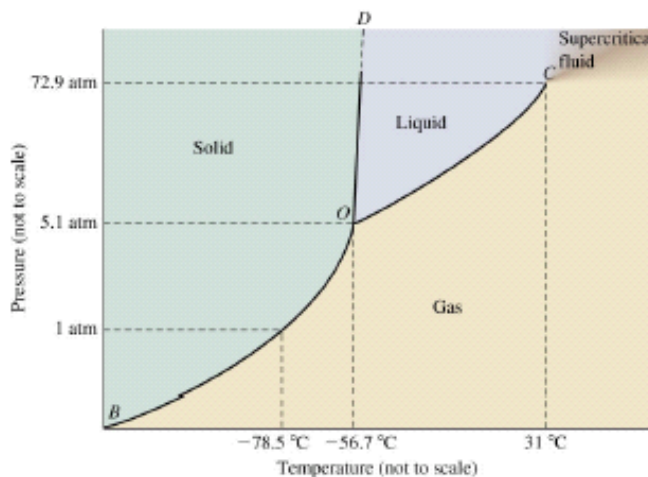
**Part B – Phase Diagram for Water.**

11. At a pressure of 1 atmosphere, what is the normal freezing point of water? \_\_\_\_\_
12. What is the normal boiling point of water, at one atmosphere of water? \_\_\_\_\_
13. In Albuquerque, we live approximately 5,500 feet above sea level, which means the normal atmospheric pressure is less than 1 atm. In Albuquerque, will water freeze at a lower temperature or a higher temperature than at 1 atmosphere? \_\_\_\_\_ Will water boil at a higher or lower temperature, than at 1 atmosphere? \_\_\_\_\_



**Part C – Phase Diagram for Carbon Dioxide.**

14. At 1 atmosphere and room temperature (25°C), would you expect solid carbon dioxide to melt to the liquid phase, or sublime to the gas phase? \_\_\_\_\_
15. Some industrial processes require carbon dioxide. The carbon dioxide is stored on-site in large tanks as liquid carbon dioxide. Assuming we lived at sea level (1 atm), how could carbon dioxide be liquefied? \_\_\_\_\_




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