

1. Why would it be better to calibrate a thermometer using the temperature at the triple point versus the temperature at the melting point?
2. What is a critical point on a phase diagram?
3. Is the following the Clausius-Claperyon equation?

$$\ln\left(\frac{P_1}{P_2}\right) = \frac{\Delta H_{vap}}{R} \left[\frac{1}{T_2} - \frac{1}{T_1} \right]$$

4. Ethanol C_2H_5OH and dimethyl ether CH_3OCH_3 have the same molecular weight (the same atomic makeup actually). What are the IMF you would find in each? Which do you think would have the higher vapor pressure at $25^\circ C$? Which do you think has the higher normal boiling point?

5. Why does water boil at a lower temperature in Denver?

6. Which phase transition are exothermic?

7. What information would you need to know to determine the amount of heat required to take a block of iron from $500^\circ C$ to liquid iron at $1800^\circ C$?

8. Find a phase diagram and navigate around it with a friend.

9. Why is there no phase transition between a gas and a SCF?

10. Iodine sublimates at 298 K. Based on this do you expect the triple point to be at a higher or lower temperature? Or does it depend on the pressure?

11. The vapor pressure of ethanol at $35^\circ C$ is 0.132 atm. 10 g of liquid ethanol are placed into a 10L container at a constant temperature of $35^\circ C$ and allowed to come to equilibrium. How many grams of liquid remain after the system comes to equilibrium (if any)?