1. According to the kinetic molecular theory (solid/liquid/gas/plasma) has the strongest intermolecular forces causing the particles to be (close/far apart). between

2. According to the kinetic molecular theory (solid/liquid/gas/plasma) moves rapidly, randomly, and continuously.

3. According to the kinetic molecular theory (solid/liquid/gas/plasma) moves all the time.

4. Attractive forces are the (same/different) as intermolecular forces.

5. (Evaporation/Boiling) is when the surface particles have enough energy to move (faster/slower) to be able overcome the intermolecular attractive forces that keep them in liquid state.

6. When the vapor pressure equals the external pressure, this causes the liquid to boil.

from liquid

atmospheric

7. When heat is added to boiling water, the temperature of the liquid water will (increase/ decrease/ stay the same)

8. High external pressure causes a (low/high) boiling point temperature.

9. If the kinetic energy decreases the temperature will (increase/decrease).

10. Convert 34.2°C to kelvin.

$34.2 + 273 = 307.2\ K$

11. If the outside temperature decreases in the winter, the pressure inside your car tire (increases/decreases)

12. Pressure is caused by collisions of gas particles. w/ container

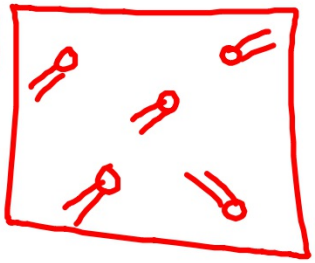
13. Convert 82.6 Kpa to mmHg

$1\ atm = 760\ mmHg = 760\ torr = 101.3\ kPa$

$$\frac{82.6\ kPa}{101.3\ kPa} \left| \frac{760\ mm\ Hg}{} \right. = 619.7 = 620.\ mm\ Hg$$

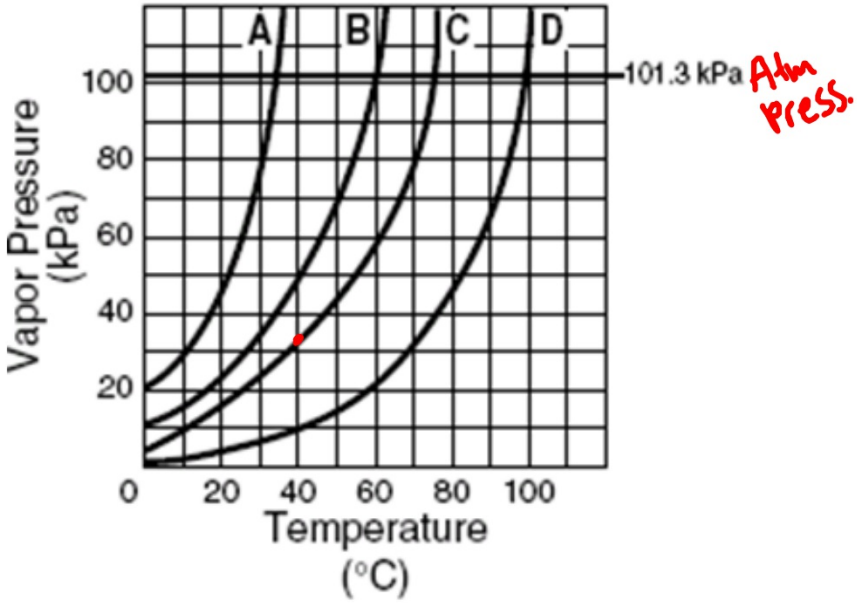
14. Convert 82.6 Kpa to atm.

$$\frac{82.6\ kPa}{101.3\ kPa} \left| \frac{1\ atm}{} \right. = 0.815\ atm$$



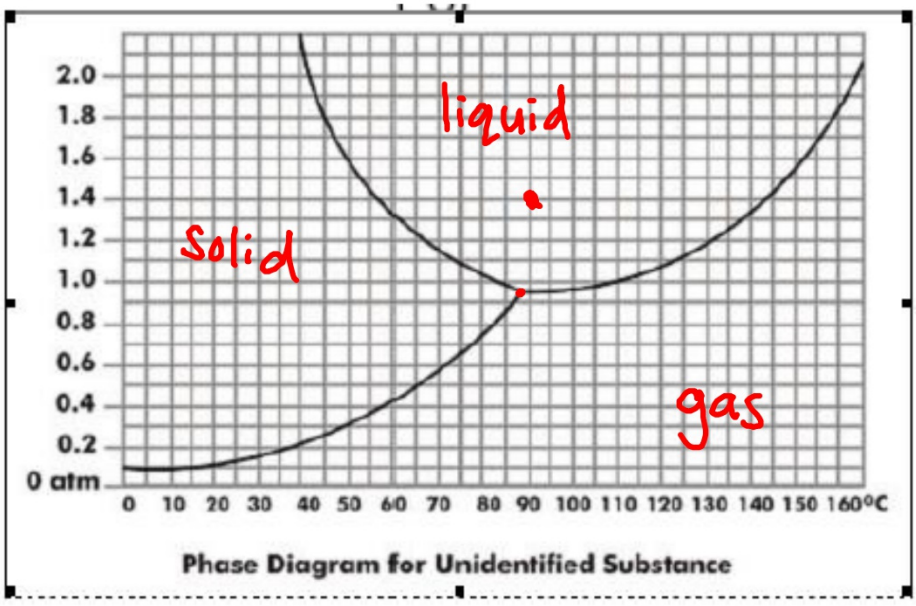
15. Using the boiling curves to the right, which liquid has the highest intermolecular forces ___D___ attractions.

16. Using the boiling curves to the right, liquid C will boil at 40 °C and ___32___ kPa .



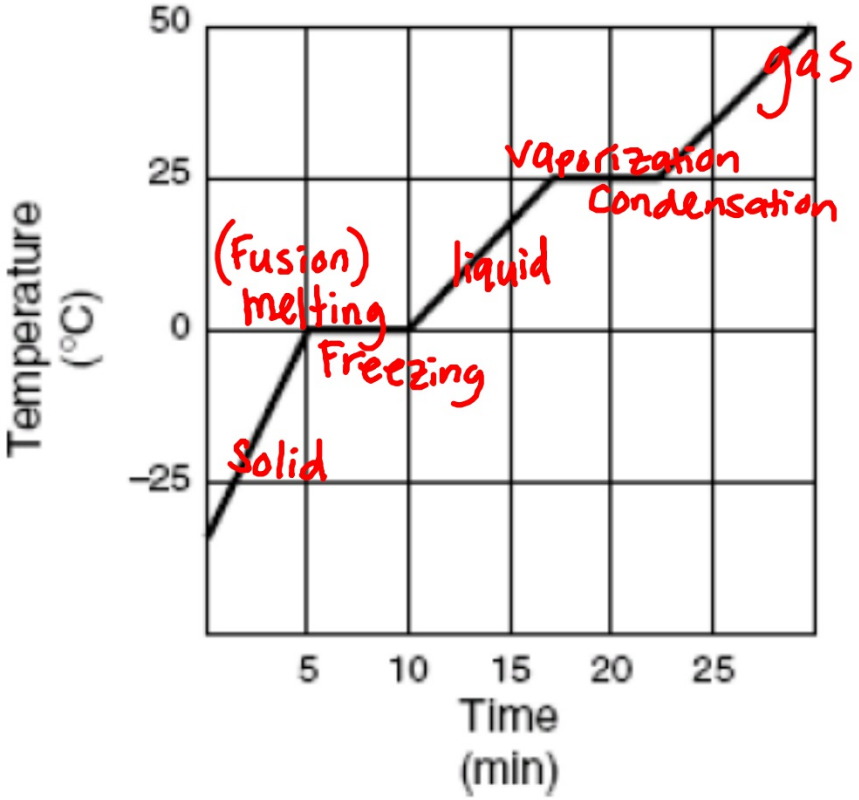
17. Using the phase diagram to the right, the temperature of this unknown substance at it's triple point is ___88___ °C and the pressure at this point is ___0.95___ atm.

18. Using the phase diagram to the right, the state of matter of this substance will be ___liquid___ at a temperature of 90 °C and a pressure of 1.4 atm.



19. Using the heating curve to the left, the melting point is

0 °C.



20. Water has a heat of fusion of 6.02 kJ/mole and a heat of vaporization of 44.0 kJ/mole. Calculate the amount of heat absorbed to make 5.32 grams of water to **vaporize.** (show work)

$\Delta H_{fusion} = 6.02$ kJ/mol

$\Delta H_{vap} = 44.0$ kJ/mol

$$\frac{5.32\text{ g } H_2O \,|\, 1\text{ mol } H_2O}{18.02\text{ g}} = 0.295\text{ mol } H_2O \,\Big|\, \frac{44\text{ kJ}}{1\text{ mol } H_2O}$$

$= 12.99$ kJ

$= \boxed{13.0\text{ kJ}}$

21. describe each physical change as **endo**thermic or **exo**thermic:

(a) Freezing liquid → solid EXO

(b) Liquid changing into a gas Endo

(c) Sublimation

solid → gas Endo

Endo = Heat (Energy) absorbed

Exo = Heat released / lost