

## CHM 130 Chapter 4 Homework Questions (Fall 2011 version)

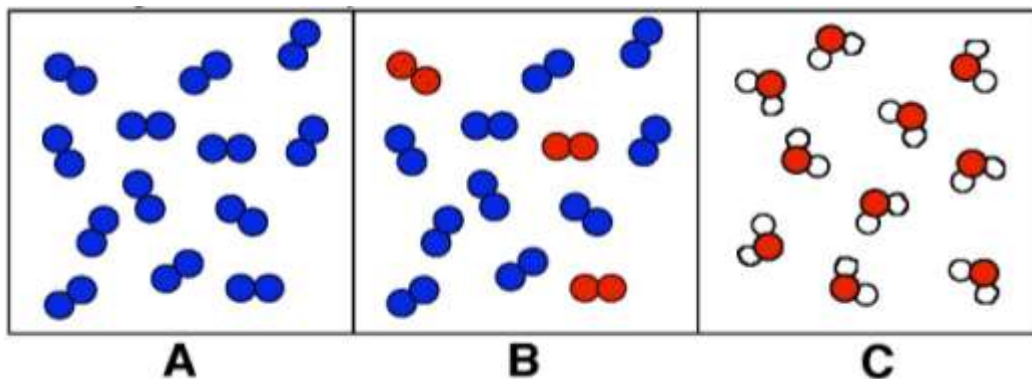
Example: The term for changing a solid to a liquid is **melting**.

1. The term for a liquid changing to a gas is \_\_\_\_\_.
2. The term for a solid changing to a gas is \_\_\_\_\_.
3. The term for a gas changing to a solid is \_\_\_\_\_.
4. The term for a gas changing to a liquid is \_\_\_\_\_.
5. Circle all the examples below that are **elements**:  
a. silicon b. carbon dioxide c. hydrogen d. brass e. air
6. Circle all the examples below that are **compounds**:  
a. titanium b. carbon dioxide c. water d. stainless steel e. air
7. Circle all the examples below that are **mixtures**:  
a. silicon b. carbon monoxide c. water d. stainless steel e. air
8. The chemical symbol for sodium is \_\_\_\_\_.
9. The chemical symbol for chlorine is \_\_\_\_\_.
10. Name the element with the chemical symbol Ne.
11. Name the element with the chemical symbol P.
12. Name the element with the chemical symbol Mg.
13. Name the element with the chemical symbol F.
14. Name the element with the chemical symbol He.
15. Circle all of the examples below that are nonmetals:  
N, Ca, Al, H, Si, I, K, Kr, Co, B
16. Circle all of the examples below that are metals:  
N, Ca, Al, H, Si, I, K, Kr, Co, B
17. Circle all of the examples below that are gases at 25 °C  
Ne, Ca, Al, H, Si, I, K, Kr, Co, B
18. Circle all of the examples below that are liquids at 25 °C:  
Ne, Ca, Al, Hg, Si, I, K, Kr, Co, Br
19. Particles in this physical state have the highest kinetic energy: a. solid b. liquid c. gas
20. Circle all the formulas where there are 6 hydrogen atoms  
a.  $\text{CH}_3\text{CH}_3$  b.  $(\text{NH}_4)_2\text{SO}_4$  c.  $\text{CH}_3\text{NH}_2$  d.  $\text{Mg}(\text{C}_2\text{H}_3\text{O}_2)_2$  e.  $\text{Al}(\text{OH})_3$
21. Circle all of the examples below that are physical properties:  
a. Ether is flammable.  
b. Copper is an orange metal.  
c. Ethanol vaporizes at 78 °C.  
d. Sodium chloride dissolves in water.  
e. Iron rusts in air.  
f. Silver conducts electricity.  
g. Magnesium produces hydrogen gas in acid.  
h. Lead oxidizes in air.  
i. Sugar ferments in alcohol.  
j. Dry ice sublimates at room temperature.
22. Circle all of the examples below that are chemical changes:  
a. Ethanol mixes with water.  
b. Sodium metal fizzes in water.  
c. Carbonated water goes flat.  
d. Copper metal turns fuzzy in silver nitrate.  
e. Sugar crystals are ground into powder.  
f. A gold ring is melted to molten gold.

- g. Sugar is heated to a caramel.
- h. Baking soda fizzes in vinegar.
- i. Propane burns with a blue flame.
- j. Purple Iodine crystals sublime to a purple vapor when heated.

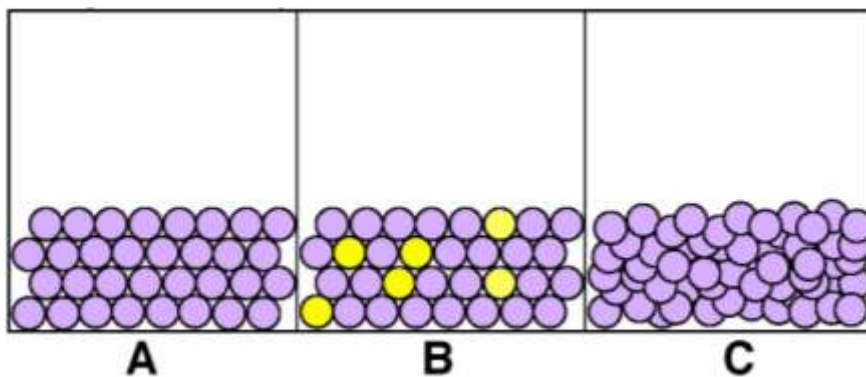
23. Circle all the statements that are correct:  
If temperature increases....
- a. the mass of the particles increases.
  - b. the kinetic energy of the particles increases.
  - c. the potential energy of the particles decreases.
  - d. the heat of the particles decreases.
  - e. the particles move faster.

24. Consider the figure of the atomic level particles below:



Circle all the statements below that are correct:

- a. A, B, and C all represent gases.
  - b. A and C both represent elements
  - c. A and C both represent compounds.
  - d. B and C both represent mixtures.
  - e. Only A represents an element.
25. Consider the figure of the atomic level particles below:



Circle all the statements below that are correct:

- a. A, B, and C all represent solids.
- b. Only A and B represent solids.
- c. A and C both represent elements.
- d. B and C both represent mixtures.
- e. C represents a liquid