

Name: SOLUTIONS

Hour: _____ Date: _____

1. Which of the following best illustrates the motion of a gas particle?

1 pts.

- A. a yo-yo bobbing up and down
- B. a rubber ball bouncing around in a box
- C. Earth orbiting the sun
- D. a race car traveling around a race track

2. 243 kPa = _____ atm.

1 pts.

$$\frac{243 \text{ kPa}}{101.3 \text{ kPa}} = \frac{1 \text{ atm}}{1}$$

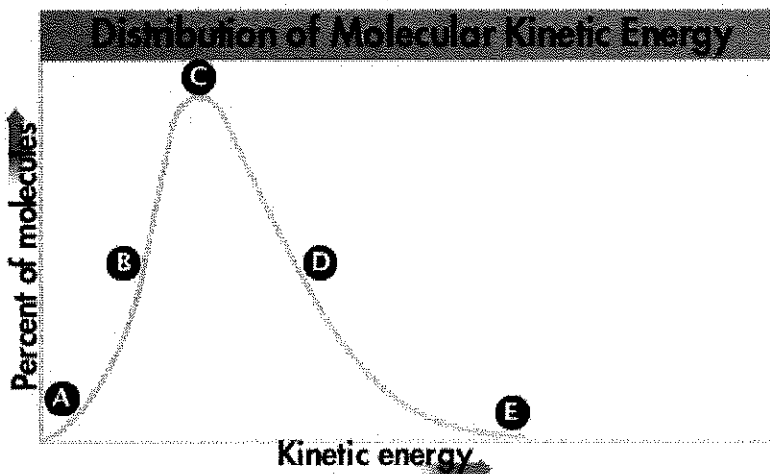
3. The kinetic energy of a gas at 50 K is _____ the kinetic energy of a gas at 200 K.

1 pts.

- A. one quarter of
- B. one half of

4. What point on the graph represents the measure of the temperature of the substance?

1 pts.



- A. A
- B. B
- C. C
- D. D
- E. E

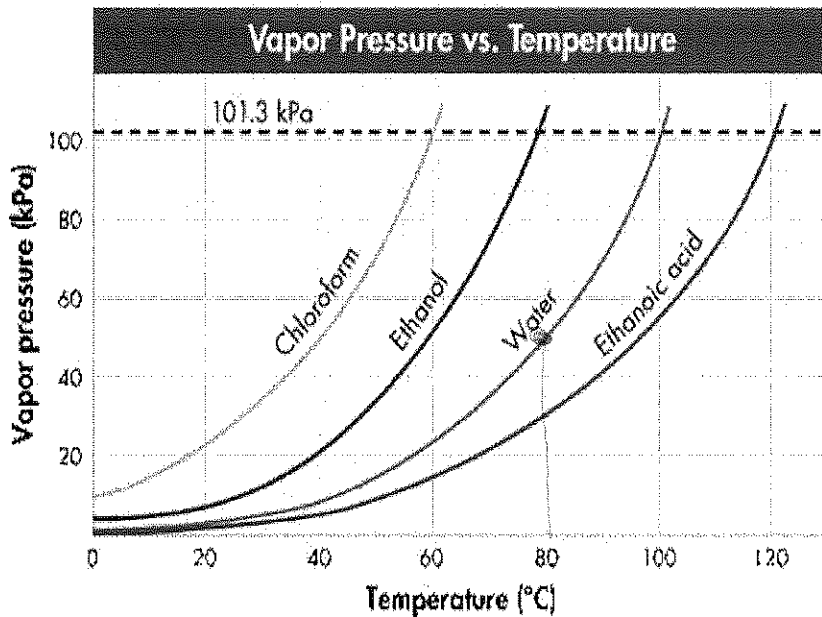
5. Two teams of explorers are setting out on different expeditions with the same brand of mac 'n cheese. Team A is walking across across Sleeping Bear dunes (sea level). Team B hiking the Rocky mountains outside of Denver (the mile-high city). How will their cooking methods differ?

1 pts.

- ↓ All at low temp cook longer
- A. Team B will need to cook their food for more time because water boils at a lower temperature at high altitude.
 - B. Team B will need to cook their food for less time because water boils at a higher temperature at high altitude.
 - C. Team B will need to cook their food for more time because water boils at a higher temperature at high altitude.
 - D. Team B will need to cook their food for less time because water boils at a lower temperature at high altitude.

6. At approximately what value does the atmospheric pressure need to be in order for the water to boil at 80 degrees Celcius?

1 pts.



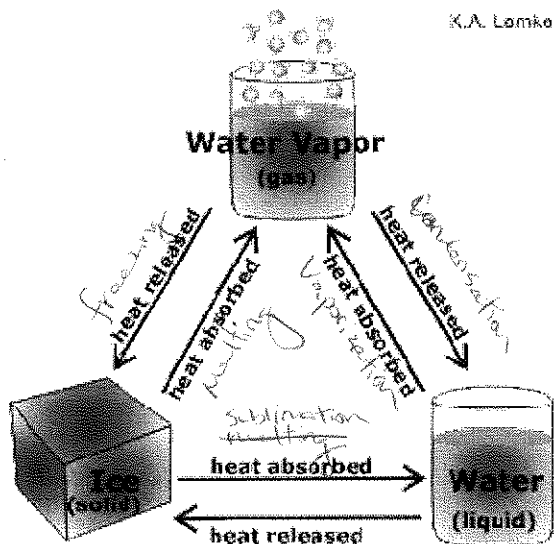
- A. 30 kPa
- B. 50 kPa
- C. 90 kPa
- D. 100 kPa

7. What causes gas pressure in a container such as a helium balloon?

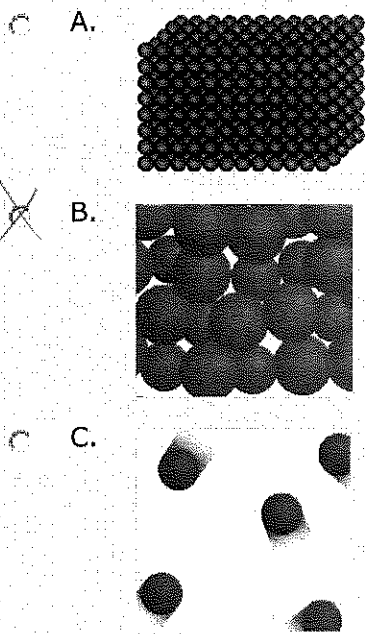
1 pts.

- A. the walls of the container
- B. the vacuum maintained in the container
- C. the simultaneous collisions of fast-moving particles with the container
- D. atmospheric pressure acting on the outside walls of the container

8. Identify the phase changes which require energy to be added to the system in order for those changes to occur by filling in the names of the phase changes depicted below.
1 pts.



9. Which diagram best illustrates a microscopic view of a liquid?
1 pts.



10. According to the kinetic theory of gases, which of the following statements is true?
1 pts.

- A. There is an attraction between particles of a gas
- B. Only particles of matter in the gaseous state are in constant motion
- C. The particles of a gas collide with each other and with other objects
- D. Collisions between particles result in a net loss of energy

11. Consider an iron cube and an aluminum cube. If the two cubes were at the same temperature, how would the average kinetic energy of the particles in iron compare with that of the particles in aluminum?
1 pts.

- A. The average kinetic energy of the iron particles would be greater
- B. The average kinetic energy of the aluminum particles would be greater
- C. There would be no difference in the average kinetic energies
- D. No determination can be made based on the information given

12. Which states of matter can flow?

1 pts.

- A. gases only
- B. liquids only
- C. gases and liquids only
- D. gases, liquids and solids

due to lower IMFs in comparison with solids

14. The melting points of molecular solids tend to be _____ than the melting points of ionic solids.

1 pts.

- A. similar
- B. unpredictable
- C. lower
- D. higher

due to difference in bonding / IMF strength

15. Which point represents the pressure and temperature at which two phases coexist in equilibrium?

1 pts.

- A. A
- B. B
- C. C
- D. D

