

Chapter 11(H)

Practice Test

Name: _____

Date: _____ Per: _____

Kinetic Molecular Theory

1. List the five postulates of the Kinetic-Molecular Theory.

Name the Gas Law

2. A potato chip bag pops when taken up in the mountains. _____
3. A balloon put in the freezer shrinks. _____
4. A lighter gas moves faster than a heavier gas. _____
5. The pressure of two gases is the sum of their partial pressures. _____

Calculations, Etc.

6. Equal amounts of gas at the same temperature and pressure have the same _____.
7. If the temperature of a sample of gas is halved at constant volume, the pressure will be _____.
8. The temperature at which matter stops moving is called _____.
9. The values of standard temperature are _____.
10. The values of standard pressure (in atm & mmHg) are _____.
11. Derive the value of R for pressure in atmospheres. (Must show work)

How would this process be different if you were to calculate the value of R for mmHg?

12. A sample of hydrogen gas has a volume of 4.40 L at a temperature of 145 °C and a pressure of 2.30 atm.
- a) How many moles are in the sample?

b) What is the mass of the sample?

13. A sample of gas measures 5.00 liters at 2.30 atmospheres of pressure. To change the volume to 3.50 liters at constant temperature, what pressure must be applied?

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14. A 2.50 L gas container is designed to hold gases with a pressure of up to 11000. mmHg. If a gas sample that has a pressure of 740. mmHg at $-20.0\text{ }^{\circ}\text{C}$ is placed in the container, at what temperature will the container burst?
15. A quantity of gas has a volume of 23.0 L at $-45.0\text{ }^{\circ}\text{C}$ and 1000. mmHg of pressure. If the conditions are changed to STP, what will the new volume be?
16. A quantity of gas has a volume of 650. L at $65.0\text{ }^{\circ}\text{C}$ and 7300. mmHg of pressure. If the gas has a mass of 1.75 g, what is the density of the gas at STP?
17. Given the equation, $\text{___ CuO(s)} + \text{___ H}_2\text{(g)} \rightarrow \text{___ Cu(s)} + \text{___ H}_2\text{O(g)}$, how many liters of hydrogen are needed to react with 88.0 g of copper (II) oxide at STP?
18. Given the equation, $\text{___ Na(s)} + \text{___ H}_2\text{O(l)} \rightarrow \text{___ NaOH(aq)} + \text{___ H}_2\text{(g)}$, if 3.00 liters of hydrogen (at STP) are produced in the above reaction, what mass of sodium was used?
19. Two gases are combined in a 2.00 L container. If the first gas has a pressure of 1.50 atm at a volume of 4.00 L and the second gas has a pressure of 4.00 atm at a volume of 1.00 L, what is the pressure of the combined gases?
20. What volume of hydrogen gas is evolved from a reaction between 0.52 g of Na and water according to the equation $2\text{Na(s)} + 2\text{H}_2\text{O(l)} \rightarrow 2\text{NaOH(aq)} + \text{H}_2\text{(g)}$? The gas is collected at $20.\text{ }^{\circ}\text{C}$ and 745 mmHg.