

Name: _____

Kinetic Molecular Theory & Gases

Extra Practice Unit 4 - Topic 3

- _____ 1. If the temperature is held constant, what will happen to the pressure exerted by a gas if the volume of the container is decreased?
- (1) increase (3) remain the same
(2) decrease (4) increase, or decrease (it depends)
- _____ 2. Which of the following is NOT true about pressure?
- (1) pressure is exerted equally in all directions
(2) pressure is defined as force per unit area
(3) gas pressure can only be measured in units of mm of mercury
(4) atmospheric pressure decreases with increasing altitude
- _____ 3. The pressure of a sample of gas is 500. mm Hg and the volume is 30.0 L. If the volume is changed to 50.0 L, what is the new pressure?
- (1) 833 mm Hg (2) 300 mm Hg (3) 7500 mm Hg (4) 3000 mm Hg
- _____ 4. If the temperature of a sample of gas is decreased at constant pressure, the volume of the gas will:
- (1) increase (3) remain the same
(2) decrease (4) increase, or decrease (it depends)
- _____ 5. Standard temperature and pressure, STP, refers to:
- (1) 100°C and zero atmosphere (3) 0°C and a pressure of one atmosphere
(2) absolute zero and one atmosphere (4) 0°C and zero atmosphere
- _____ 6. A sample of gas in a rigid container (constant volume) is at a temperature of 25.0°C. If the temperature of the gas is increased to 50.0°C, what will happen to the pressure exerted by the gas?
- (1) it will double (3) it will increase by a small amount
(2) it will halve (4) it will decrease by a small amount
- _____ 7. A gas occupies a volume of 444 mL at 273 K and 79.0 kPa. What is the final Kelvin temperature when the volume of the gas is changed to 1880 mL and the pressure is changed to 38.7 kPa?
- (1) 31.5 K (2) 566 K (3) 292 K (4) 2360 K
- _____ 8. A sample of gas is held at constant pressure. Increasing the Kelvin temperature of this gas sample causes the average kinetic energy of its molecules to:
- (1) decrease and the volume of the gas sample to decrease
(2) decrease and the volume of the gas sample to increase
(3) increase and the volume of the gas sample to decrease
(4) increase and the volume of the gas sample to increase

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- _____ 9. A gas occupies a volume of 40.0 milliliters at 20°C. If the volume is increased to 80.0 milliliters at constant pressure, the resulting temperature will be equal to:

(1) $20^{\circ}\text{C} \times \frac{80.0 \text{ mL}}{40.0 \text{ mL}}$ (3) $293 \text{ K} \times \frac{80.0 \text{ mL}}{40.0 \text{ mL}}$

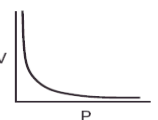
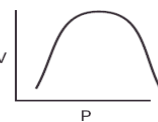
(2) $20^{\circ}\text{C} \times \frac{40.0 \text{ mL}}{80.0 \text{ mL}}$ (4) $293 \text{ K} \times \frac{40.0 \text{ mL}}{80.0 \text{ mL}}$

- _____ 10. The volume of a gas is 4.00 liters at 293 K and constant pressure. For the volume of the gas to become 3.00 liters, the Kelvin temperature must be equal to:

(1) $\frac{3.00 \times 293}{4.00}$ (3) $\frac{3.00 \times 4.00}{293}$

(2) $\frac{4.00 \times 293}{3.00}$ (4) $\frac{293}{3.00 \times 4.00}$

- _____ 11. Which graph best represents the pressure - volume relationship for an ideal gas at constant temperature?



- _____ 12. A sample of helium gas has a volume of 900. milliliters and a pressure of 2.50 atm at 298 K. What is the new pressure when the temperature is changed to 336 K and the volume is decreased to 450. milliliters?

- (1) 0.177 atm (2) 4.43 atm (3) 5.64 atm (4) 14.1 atm