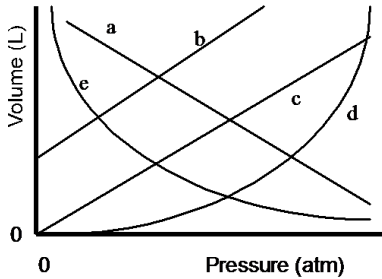


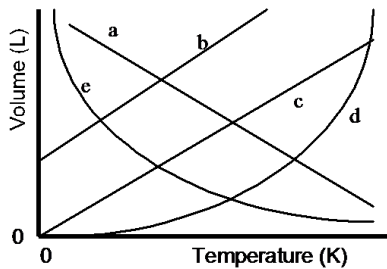
Gas Laws Practice Quiz

1. Which of the lines on the figure below is the best representation of the relationship between the volume of a gas and its pressure, other factors remaining constant?



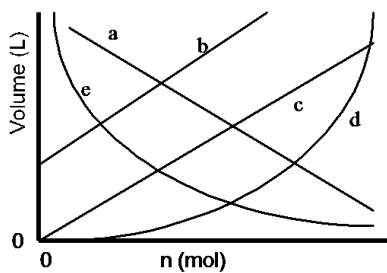
- A. a B. b C. c D. d E. e

2. Which of the lines on the figure below is the best representation of the relationship between the volume of a gas and its absolute temperature, other factors remaining constant?



- A. a B. b C. c D. d E. e

3. Which of the lines on the figure below is the best representation of the relationship between the volume and the number of moles of a gas, measured at constant temperature and pressure?



- A. a B. b C. c D. d E. e

4. A sample of the inert gas krypton has its pressure tripled while its temperature remained constant. If the original volume is 12 L, what is the final volume?

- A. 4.0 L B. 6.0 L C. 9 L D. 36 L E. 48 L

5. A weather balloon was initially at a pressure of 0.950 atm, and its volume was 35.0 L. The pressure decreased to 0.750 atm, without loss of gas or change in temperature. What was the change in the volume?

- A. increased by 44.3 L B. increased by 9.3 L C. increased by 7.4 L
D. decreased by 27.6 L E. decreased by 7.4 L

6. A 0.850-mole sample of nitrous oxide, a gas used as an anesthetic by dentists, has a volume of 20.46 L at 123°C and 1.35 atm. What would be its volume at 468°C and 1.35 atm?

- A. 5.38 L B. 10.9 L C. 19.0 L D. 38.3 L E. 77.9 L

7. Ima Chemist found the density of Freon-11 (CFCl_3) to be 5.58 g/L under her experimental conditions. Her measurements showed that the density of an unknown gas was 4.38 g/L under the same conditions. What is the molar mass of the unknown?

- A. 96.7 g/mol B. 108 g/mol C. 127 g/mol D. 165 g/mol E. 175 g/mol

8. A flask with a volume of 3.16 L contains 9.33 grams of an unknown gas at 32.0°C and 1.00 atm. What is the molar mass of the gas?

- A. 7.76 g/mol B. 66.1 g/mol C. 74.0 g/mol D. 81.4 g/mol E. 144 g/mol

9. A gas mixture consists of equal masses of methane (molecular weight 16.0) and argon (atomic weight 40.0). If the partial pressure of argon is 200. torr, what is the pressure of methane, in torr?

- A. 80.0 torr B. 200. torr C. 256 torr D. 500. torr E. 556 torr

10. Hydrogen peroxide was catalytically decomposed and 75.3 mL of oxygen gas was collected over water at 25°C and 742 torr. What mass of oxygen was collected? ($P_{\text{water}} = 24$ torr at 25°C)

- A. 0.00291 g B. 0.0931 g C. 0.0962 g D. 0.0993 g E. 0.962 g

11. Which of the following gases will be the slowest to diffuse through a room?

- A. methane, CH_4 B. hydrogen sulfide, H_2S C. carbon dioxide, CO_2
D. water, H_2O E. neon, Ne

12. Helium gas is being pumped into a rigid container at a constant temperature. As a result, the pressure of helium in the container is increasing. Select the one correct statement below.

- A. As the pressure increases, helium atoms move faster, on average.
B. As the pressure increases, helium atoms move more slowly, on average.
C. As the pressure increases, the volume of the container must decrease.
D. As the pressure increases, helium atoms stay closer to the wall of the container, on average.
E. As the pressure increases, there are more collisions of helium atoms with the container wall.

13. Nitrogen will behave most like an ideal gas

- A. at high temperature and high pressure.
B. at high temperature and low pressure.
C. at low temperature and high pressure.
D. at low temperature and low pressure.
E. at intermediate (moderate) temperature and pressure.

14. A sample of carbon dioxide gas at 125°C and 248 torr occupies a volume of 275 L. What will the gas pressure be if the volume is increased to 321 L at 125°C?

- A. 212 torr B. 289 torr C. 356 torr D. 441 torr E. 359 torr

15. A sample of propane, a component of LP gas, has a volume of 35.3 L at 315 K and 922 torr. What is its volume at STP?

- A. 25.2 L B. 30.6 L C. 33.6 L D. 37.1 L E. 49.2 L

Gas Laws Practice **Key**

1. (p. 193) **E.** e
2. (p. 195) **C.** c
3. (p. 197) **C.** c
4. (p. 198) **A.** 4.0 L
5. (p. 193) **B.** increased by 9.3 L
6. (p. 198) **D.** 38.3 L
7. (p. 204) **B.** 108 g/mol
8. (p. 204) **C.** 74.0 g/mol
9. (p. 206) **D.** 500. torr
10. (p. 209) **B.** 0.0931 g
11. (p. 215) **C.** carbon dioxide, CO₂
12. (p. Sec. 5.6) **E.** As the pressure increases, there are more collisions of helium atoms with the container wall.
13. (p. 224) **B.** at high temperature and low pressure.
14. (p. 198) **A.** 212 torr
15. (p. 198) **D.** 37.1 L