Name: _____ **Block:** ___ **Date:** _____

Gas Laws Review

Read each question carefully and record answers on answer sheet. **DO NOT WRITE ON THIS SHEET! Please record all work on a separate sheet. (Test format matches this review sheet ☺)**

Short answer (2 points each)

1. The relationship between pressure and volume of a gas is: _____ proportional.
2. As the volume of a gas decreases, if the pressure remains constant, the temperature will (increase, decrease, remain the same) _____.
3. Gas molecules undergo (attractive, repulsive, elastic) _____ collisions.
4. Standard temperature is _____°C and _____K.
5. Standard pressure is _____ kPa, _____ mmHg and _____ atm.

Word Problems (6 points each)

Boyle's, Charles and Combined Gas Laws

6. A sample of O_2 has a pressure of 2.3 atm in a 2.0 L container. If it is transferred to a 750.0 ml container at the same temperature, what is the new pressure?
7. A container of water vapor at 32°C holds 7.5 L. If the container is cooled to 2°C, what is the new volume?
8. A gas measures 275 ml at 105°C and 790 mmHg. What will its volume be at 70.0°C and 821 mmHg?
9. A tank holds 20.0 mL of water vapor at 18°C and 78.9 kPa. What is the new temperature if the pressure is increased to 99.2 atm and the volume increased to 40.0 mL?

Ideal Gas Law

$$R = 62.4 \frac{\text{L mmHg}}{\text{mol L}}$$

10. What is the volume of 16.0 g of chlorine gas at 15°C and 585 mmHg?
11. A gas in a 750 ml container exerts a pressure of 800.0 mmHg at 95°C. How many moles of gas are in the container?
12. H_2S gas in a 0.250 L container exerts a pressure on 985 mmHg at 50.0°C. How many grams of H_2S are in the container?
13. What is the pressure of 48.3 g of nitrogen gas in a 807 ml container at 100.0°C?

Gas Density

14. What is the density of fluorine gas at STP?
15. What is the density of fluorine gas at 27°C and 1.21 atm?
16. What is the density of helium gas at STP?
17. What is the density of helium gas at 45°C and 78.8 kPa?

Dalton's Law of Partial Pressures

18. Calculate the total pressure of a mixture of noble gases. Contents: argon exerts 30.0 kPa, neon exerts 60.0 kPa, and helium exerts 80.0 kPa of pressure.
19. The total pressure of a container is 1.32 atm. If the partial pressure of the water vapor is 0.27 atm, what is the partial pressure of the other gases?
20. A tank holds a mixture of nitrogen, phosphorous and sulfur gases; its total pressure is 782 mmHg. What is the partial pressure of the nitrogen if the partial pressure of phosphorous is 392 mmHg and sulfur is 230. mmHg?