

Name _____ Date _____

Gas Laws Review Sheet

Quantitative Chemistry

For problems, be sure to show your work and use significant figures!

1. Write the equation associated with the following laws. What units are associated with each variable? (Where applicable)

Boyle

Charles

Gay-Lussac

Combined

Avogadro

Dalton

Ideal

2. Complete the following with the words “increases” or decreases”.
- a. As temperature increases, volume _____.
 - b. As pressure increases, volume _____.
 - c. As moles increase, volume _____.
3. What are the conditions at STP? _____
How many liters does 1 mole of a gas occupy at STP? _____
4. What piece of equipment is used to measure pressure? _____
Who invented it? _____
5. According to kinetic molecular theory, gas particles are extremely _____, and when they collide with the walls of their container, they are exerting _____.
6. Convert 2.34 atm to mm Hg.

7. A certain gas occupies 120 milliliters at 770 torr. What is its volume at 590 torr?
8. A sample of neon containing 0.75 moles has a volume of 13 L. How many moles of neon are present at a volume of 100. L?
9. A sample of a gas (1.50 L) is collected at 1.0 atm and 25°C. If the pressure increases to 2.5 atm, and the volume is now 800. mL, what must be the new temperature in Celsius?
10. A mixture of noble gases has a pressure of 1140 torr. If the partial pressure of helium is 1.0 atm, and the partial pressure of neon is 300 torr, what is the partial pressure of the argon?
11. What is the pressure of 50.0 grams of nitrous oxide (N₂O) at 300. K and a volume of 23.0 L?
12. How many grams of mercury(II) oxide are needed to produce 8.0 liters of oxygen gas at STP? $2\text{HgO} \rightarrow 2\text{Hg} + \text{O}_2$
13. Calcium reacts with water to form calcium hydroxide and hydrogen gas. If 4.00 grams of calcium react at 32°C and 0.93 atm, what volume of hydrogen gas is produced?