Name _____ Class _____ Date _____

Assessment

Gases

Section Quiz: Gas Volumes and the Ideal Gas Law

In the space provided, write the letter of the term or phrase that best completes each sentence or best answers each question.

_____ **1.** At the same temperature and pressure, balloons of equal volume always contain
- **a.** equal masses of gas.
- **b.** equal numbers of molecules.
- **c.** equal densities of gas.
- **d.** equal number of atoms.

_____ **2.** The person who established that water must contain twice as many hydrogen atoms as oxygen atoms was
- **a.** Dalton.
- **b.** Avogadro.
- **c.** Gay-Lussac.
- **d.** Boyle.

_____ **3.** The coefficients in a balanced chemical equation involving diatomic gases indicate the relative numbers of all of the following except
- **a.** atoms.
- **b.** molecules.
- **c.** moles.
- **d.** volumes.

_____ **4.** The volume of 1 mol of any gas at STP is
- **a.** 22.41 atm.
- **b.** 22.41 mL.
- **c.** 22.41 Pa.
- **d.** 22.41 L.

_____ **5.** Which law implies that the volume of a gas is directly proportional to the number of moles of the gas?
- **a.** Charles's
- **b.** Boyle's
- **c.** Avogadro's
- **d.** Gay-Lussac's

Section Quiz, *continued*

_____ **6.** The ideal gas law states the relationship among
- **a.** pressure, volume, temperature, the gas constant, and number of moles.
- **b.** pressure, volume, and temperature only.
- **c.** the gas constant and pressure only.
- **d.** the gas constant and volume only.

_____ **7.** If the pressure and temperature are kept constant, gases react in volume proportions that are
- **a.** difficult to calculate.
- **b.** unknown.
- **c.** whole numbers.
- **d.** square roots.

_____ **8.** In the reaction $N_2(g) + 2O_2(g) \rightarrow 2NO_2(g)$, what is the volume ratio of N_2 to NO_2?
- **a.** 1:1
- **b.** 1:2
- **c.** 2:1
- **d.** 2:5

_____ **9.** In gas stoichiometry problems, the bridge between moles and volume is the
- **a.** ideal gas law.
- **b.** law of combining volumes.
- **c.** kinetic-molecular theory.
- **d.** law of partial pressure.

_____ **10.** Which is one way of expressing the units for the ideal gas constant?
- **a.** mol•atm/(L•K)
- **b.** mol•K/(L•mm Hg)
- **c.** L•K/(mol•kPa)
- **d.** L•kPa/(mol•K)