Chemistry: Gas Laws Practice   Name: _____

Match each example below with the appropriate gas property it illustrates.

_____1. the fragrance of perfume spreads   a. compressibility
          through the room
_____2. smog forms over Atlanta during   b. diffuses through other gases
          summer days
_____3. a cylinder of oxygen used   c. exerts pressure
             in a hospital
                                             d. fills container

_____4. a balloon is inflated with helium   e. has mass

_____5. a balloon filled with air weighs
          more than an empty balloon

Match the variables used to describe gases to the correct unit.

_____7. kPa   ____11. mm Hg   a. pressure

_____8. °C   ____12. atmospheres (atm)

_____9. mL   ____13. L   b. temperature

____10. K   ____14. °F   c. volume

Complete the following statements by writing "decreases," "increases," or "remains the same" on the line provided.
As a gas is compressed in a cylinder,

    15. its mass _____.

    16. the number of gas molecules _____.

    17. its pressure _____

    18. its volume _____.

    19. the distance between gas molecules _____.

    20. its density _____.

Compete the following statements about the nature of gases as presented in the kinetic molecular theory by filling in the appropriate word (s) from the list below.

kinetic energy   no force   perfectly elastic
pressure   random motion   zero

22. Gas particles exert _____ on one another.

23. Gas molecules are said to be in _____.

24. The volume of gas particles themselves is said to be _____.

25. The collisions between gas particles are _____.

26. The temperature of a gas is a measure of the average _____ of the gas particles.

Math Problems

27. A 7.0 liter balloon at room temperature (22°C) contains hydrogen gas. If the balloon is carried outside to where the temperature is –3.0°C, what volume will the balloon occupy?

28. A 5.0 liter tank of oxygen gas is at a pressure of 3 atm. What volume of oxygen will be available if the oxygen is used at standard pressure?

29. A 500 liter volume of helium gas is at a pressure of 750 mm Hg and has a temperature of 300K. Assuming the volume is kept constant, what is the pressure exerted by this gas at standard temperature?

30. Nitrogen (80 kPa), oxygen (21.0 kPa), carbon dioxide (0.03 kPa), and water vapor (2.0 kPa) are the usual atmospheric components.
    a. What is the total atmospheric pressure in kPa?

    b. Which gas (nitrogen, oxygen, carbon dioxide, or water vapor) molecules would you expect to be moving the fastest? Why?