**Answers to Chapter Review Questions**

11. Wind flows across the country side, just as water in a stream.

12. When filled with water, and plugged, the plunger can’t be pushed in. But with air, a small pressure decreases the volume in the syringe.

13. The volume of the tire is constant. As the temperature increases, the molecules will increase in speed, or average velocity, causing the pressure of the tire to increase because there are more collisions with the wall of the tire.

14. There are more molecules, and because there are more molecules they can strike the walls of the tire more often.

15. As the lungs expand, pressure decrease, causing the air to flow in.

16. Gases are easily compressible.

17. The gas fills the entire tire.

18. The kinetic-molecular theory states that gas particles are in constant random motion, are very far apart, have volumes which are negligible when compared with the total volume of a gas, and have collisions which are perfectly elastic.

19. The average kinetic energy of a gas is directly proportional to temperature.

20. They are inversely related.

21. The molecules are closer together, and strike the walls of the container more often.

22. They are directly proportional.

23. Gas particles at higher temperatures will have a higher average kinetic energy, speed, which means that their molecular speeds will be higher and therefore the volume of the gas will increase in order to maintain the same frequency of collisions and therefore maintain constant pressure.

24. They are directly proportional.

25. Gas particles at higher temperature will have a higher average kinetic energy, speed, which means they will collide with each other and with the walls of their container more often, thus exerting more pressure.

26. Equal volumes of gases at the same temperature and pressure will contain the same number of gas molecules.

27. R = 8.314 LkPa / molK

28. Both travel by diffusion. Ammonia travels faster because it is less massive.

29. Volume changes in chemical reactions, if one of the formulas is known, you can show how what the mole proportions are in the reaction.

30. Ptotal = PA + PB + PC …

59. M = 64 g/mol which is SO2

60. M = 128 g/mol with is HI.

61. 1.91 X 103 m/s

62. 240 m/s

63. 10.4 L

64. 0.484 g Mg

65. 0.0354 g C8H18

66. Skip

67. 2.28 X 103 L