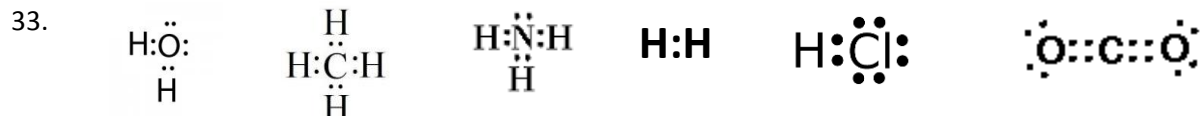


125 things Answer key

1. Protons and neutrons in nucleus, electrons outside nucleus
2. Equal to atomic number
3. Mass – atomic number
4. Atomic number
5. Metal ions-subtract the charge from the electron number; Nonmetal ions add the charge
6. Protons and neutrons both have a mass of 1 amu
7. Protons + neutrons
8. Number of protons
9. Number of protons (located on bottom left corner of element symbol)
10. Same # of protons different # of neutrons
11. Electrons go from excited state (high energy) to ground state (low energy)
12. Use electron configuration (remember BOHRings)
13. Locate group with same number of valence electrons
14. Same group
15. Decreases because of increased nuclear pull
16. Increases due to increased nuclear pull
17. Increases due to increased nuclear pull
18. Increase because more electron shells
19. Decreased because larger size means less pull on valence electrons
20. Decreased because larger size means less pull on valence electrons
21. Fluorine
22. Helium
23. Metals left of staircase; nonmetals right of staircase; metalloids on staircase
Metals: malleable, ductile, lustrous, high mp and bp, good conductors
Nonmetals: brittle, dull, poor conductors, low mp and bp
Metalloids: properties of both
24. Nobel gases due to full valence shell
25. Elements
26. Physical doesn't form new substance chemical does
27. Ionic: metal and nonmetal
Covalent: nonmetal and nonmetal
Metallic: atoms of same metal
28. Ionic: transfer e-
Covalent: share e-
Metallic: sea of mobile e-
29. Ionic: conduct in aq
Covalent: do not conduct*
Metallic: always conduct
30. Ionic compounds that contain polyatomic ions
31. Absorbed (BARF)
32. Most polar: metal and nonmetal
Least polar: nonmetal and nonmetal

125 things Answer key



34. Water is polar, methane is nonpolar, ammonia is polar, H₂, HCl is polar, CO₂ is nonpolar
35. Yes because its polar (asymmetrical) like dissolves like
36. Hydrogen bonding because its most polar
37. Total mass of x and y from periodic table
38. 4
39. 2 mol
40. Synthesis, decomposition, single replacement, double replacement
41. 8 grams
42. Mass, energy, charge
43. XY₂
44. X₂Y₂
45. Hydrogen
46. Temperature
47. KE stays same; PE increases
48. PE stays same; KE increases
49. 37,620J
50. 226,000J
51. 33,400J
52. Low because they heat up and cool down quickly (do not require a lot of heat to do so)
53. 3 reaction down on table I
54. KNO₃
55. Solid to gas
56. Random with great distances between the particles
57. PLIGHT (pressure low, high temp)
58. Opposite of PLIGHT
59. Look on table A
60. H₂(g)
61. Decrease
62. Direct
63. Increase
64. High temp low pressure
65. # of particles
66. Heterogeneous mixtures
67. Separates by differences in boiling pt
68. Polar dissolves in polar and nonpolar dissolves in nonpolar
69. Homogeneous (aq)
70. 12 kPa

125 things Answer key

71. Propanone
72. NaNO_3
73. SO_2
74. Under the line is unsaturated; on the line is saturated; above line is supersaturated
75. $0.010\text{g}/10000.010\text{g of solution} = 0.999\text{ppm}$
76. Increase
77. Decrease
78. Increase the following: temp, concentration, surface area, pressure (gases) or add a catalyst to increase the number of effective collisions
79. Lower activation energy
80. Heat of products – heat of reactants
81. $3\text{H}_2 + \text{N}_2 \rightarrow 2\text{NH}_3$ because hydrogen is used to make more ammonia (shifts right)
82. They are constant
83. They are equal
84. Side with more moles of gas is affected more which shifts equilibrium away from the stress to the side with less moles of gas
85. Contains carbon and hydrogen
86. Contains carbon and hydrogen only
87. $\text{C}_n\text{H}_{2n+2}$
88. 2
89. Alkanes
90. Alcohols, organic acids
91. Same molecular formula different structural formula
92. Addition
93. Soap: saponification
Alcohol: fermentation
Plastics: polymerization
Ester: esterification
94. Conducts electricity
95. H^+ or H_3O^+
96. OH^-
97. The concentration of $\text{H}^+ = \text{OH}^-$ $\text{HCl} + \text{NaOH} \rightarrow \text{H}_2\text{O} + \text{NaCl}$
98. Acids (1-7) bases (7-14)
99. Increase by a factor of 100
100. Pink
101. Titration
102. 2 species changing oxidation states (single replacement always redox and double never)
103. Oxidation # increases
104. Gains electrons
105. They are conserved
106. Anode (an ox)
107. Li (highest on table J)

125 things Answer key

108. Through wire from anode to cathode
109. Allow ions to flow
110. Electrons flow spontaneously from anode to cathode
111. Cathode
112. Voltaic: converts chemical energy to electrical energy
Electrolytic: converts electrical energy to chemical energy
113. To force the nonspontaneous reaction
114. Unstable (radioactive)
115. Alpha
116. Gamma
117. Gamma
118. Use table N
119. Use able N
120. U-238 (longest half life)
121. I-131 for thyroid; U-238 for rocks; C-14 for organic material; Co-60 for cancer
122. Natural has 1 reactant and artificial has 2 reactants
123. Fission starts with large atoms and fusion with small
124. Fusion needs large amounts of energy
125. Benefit: detect disease
Risk: causes cancer