

Ch. 2 Summer Assignment

6. You have a chemical in a sealed glass container filled with air. The system has a mass of 250.0 g. The chemical is ignited by means of a magnifying glass focusing sunlight on the reactant. After the chemical is completely burned, what is the mass of the setup? Explain your answer.
7. You take three compounds consisting of two elements and decompose them. In order to determine the relative masses of X, Y, and Z, you collect and weigh the elements, obtaining the following data:

Elements in Compound	Masses of Elements
X and Y	X = 0.4 g, Y = 4.2 g
Y and Z	Y = 1.4 g, Z = 1.0 g
X and Y	X = 2.0 g, Y = 7.0 g

- a. What are the assumptions in solving this problem?
 b. What are the relative masses of X, Y, and Z?
 c. What are the chemical formulas of the three compounds?
 d. If you decompose 21 g of compound XY, how much of each element is present?
41. In the periodic table, how many elements are found in
 a. the second period? c. the fourth period?
 b. the third period? d. Group 5A?
42. In the periodic table, how many elements are found in
 a. Group 2A? c. the nickel group?
 b. the oxygen family? d. Group 8A?
43. Give the number of protons and neutrons in the nucleus of each of the following atoms:
 a. $^{238}_{94}\text{Pu}$ d. ^4_2He
 b. $^{65}_{29}\text{Cu}$ e. $^{60}_{27}\text{Co}$
 c. $^{52}_{24}\text{Cr}$ f. $^{54}_{24}\text{Cr}$

51. Complete the following table:

Symbol	Number of protons in nucleus	Number of neutrons in nucleus	Number of electrons	Net charge
	33	42		3+
$^{128}_{52}\text{Te}^{2-}$			54	
	16	16	16	
	81	123		1+
$^{195}_{78}\text{Pt}$				

59. Would you expect each of the following atoms to gain or lose electrons when forming ions? What ion is the most likely in each case?
 a. Na c. Ba e. Al
 b. Sr d. I f. S
60. Would you expect each of the following atoms to gain or lose electrons when forming ions? What ion is the most likely in each case?
 a. Ra c. P e. Br
 b. In d. Te f. Rb

61. Name each of the following compounds:
 a. NaCl c. CaS
 b. Rb_2O d. AlI_3

62. Name each of the following compounds:
 a. Hg_2O c. CoS
 b. FeBr_3 d. TiCl_4

63. Name each of the following compounds:
 a. CrO_3 c. Al_2O_3 e. CaBr_2
 b. Cr_2O_3 d. NaH f. ZnCl_2

64. Name each of the following compounds:
 a. CsF c. Ag_2S e. TiO_2
 b. Li_3N d. MnO_2 f. Sr_3P_2

65. Name each of the following compounds:
 a. KClO_4 c. $\text{Al}_2(\text{SO}_4)_3$
 b. $\text{Ca}_3(\text{PO}_4)_2$ d. $\text{Pb}(\text{NO}_3)_2$

66. Name each of the following compounds:
 a. BaSO_3 c. KMnO_4
 b. NaNO_2 d. $\text{K}_2\text{Cr}_2\text{O}_7$

67. Name each of the following compounds:
 a. NI_3 c. SF_2
 b. PCl_3 d. N_2F_4

71. Write the formula for each of the following compounds:
 a. cesium bromide e. silicon tetrachloride
 b. barium sulfate f. chlorine trifluoride
 c. ammonium chloride g. beryllium oxide
 d. chlorine monoxide h. magnesium fluoride

72. Write the formula for each of the following compounds:
 a. sulfur difluoride
 b. sulfur hexafluoride
 c. sodium dihydrogen phosphate
 d. lithium nitride
 e. chromium(III) carbonate
 f. tin(II) fluoride
 g. ammonium acetate
 h. ammonium hydrogen sulfate
 i. cobalt(III) nitrate
 j. mercury(I) chloride
 k. potassium chlorate
 l. sodium hydride

73. Write the formula for each of the following compounds:
 a. sodium oxide g. lead(IV) sulfide
 b. sodium peroxide h. copper(I) chloride
 c. potassium cyanide i. gallium arsenide
 d. copper(II) nitrate j. cadmium selenide
 e. silicon tetrachloride k. zinc sulfide
 f. lead(II) sulfide

74. Write the formula for each of the following compounds:
 a. ammonium hydrogen phosphate
 b. mercury(I) sulfide
 c. silicon dioxide
 d. sodium sulfite
 e. aluminum hydrogen sulfate
 f. nitrogen trichloride
 g. hydrobromic acid
 h. bromous acid
 i. perbromic acid
 j. potassium hydrogen sulfide