

## Mixed Naming Worksheet – Ionic, Covalent and Acids

Directions: Be sure to determine what type of compound your substance is – ionic, binary covalent or an acid.

### Naming Compounds

1.  $\text{NO}_2$  Nitrogen Dioxide
2.  $\text{NaBr}$  Sodium Bromide
3.  $\text{SiO}_2$  Silicon Dioxide
4.  $\text{P}_2\text{Br}_4$  Diphosphorus tetrabromide
5.  $\text{FeSO}_4$  Iron (II) Sulfate
6.  $\text{SF}_6$  Sulfur Hexafluoride
7.  $\text{HNO}_3$  Nitric Acid
8.  $\text{Li}_2\text{S}$  Lithium Sulfide
9.  $\text{HCl}$  Hydrochloric acid
10.  $\text{MgBr}_2$  magnesium Bromide
11.  $\text{N}_2\text{S}$  Dinitrogen Monosulfide
12.  $\text{SeF}_2$  Selenium Difluoride
13.  $\text{AsCl}_3$  Arsenic Trichloride
14.  $\text{HClO}$  Hypochlorous Acid
15.  $\text{Be(OH)}_2$  Beryllium Hydroxide
16.  $\text{SO}_3$  Sulfur trioxide
17.  $\text{KMnO}_4$  Potassium Permanganate
18.  $\text{HClO}_4$  Perchloric Acid
19.  $\text{Cu}_2\text{S}$  Copper (I) Sulfide
20.  $\text{BF}_3$  Boron Trifluoride
21.  $\text{H}_2\text{SO}_4$  Sulfuric Acid
22.  $\text{CaI}_2$  Calcium Iodide
23.  $\text{Pb}_3(\text{PO}_4)_2$  Lead<sup>(II)</sup> Phosphate
24.  $\text{HCH}_3\text{COO}$  Acetic Acid
25.  $\text{Ca}(\text{CH}_3\text{COO})_2$  Calcium acetate
26.  $\text{P}_2\text{O}_5$  Diphosphorus Pentoxide
27.  $\text{BaCl}_2$  Barium chloride
28.  $\text{K}_2\text{SO}_4$  Potassium Sulfate
29.  $\text{Pb}(\text{ClO}_3)_2$  Lead<sup>(II)</sup> Chlorate
30.  $\text{H}_3\text{PO}_4$  Phosphoric Acid
31.  $\text{NF}_3$  Nitrogen Trifluoride
32.  $\text{TiCl}_2$  Titanium (II) Chloride
33.  $\text{Al}_2(\text{HPO}_4)_3$  Aluminum Hydrogen Phosphate
34.  $\text{HBrO}_3$  Bromic Acid
35.  $\text{HIO}_3$  Iodic Acid
36.  $\text{H}_2\text{S}$  Hydrosulfuric acid
37.  $\text{Si}_3\text{Cl}_9$  Trisilicon Nonachloride
38.  $\text{Ca}_3\text{P}_2$  Calcium Phosphide
39.  $\text{Sr(OH)}_2$  Strontium Hydroxide
40.  $\text{HClO}_2$  Chlorous Acid
41.  $\text{HClO}_4$  Perchloric Acid
42.  $\text{H}_2\text{SO}_3$  Sulfurous Acid
43.  $\text{H}_3\text{P}$  Hypophosphoric Acid
44.  $\text{NO}$  Nitrogen monoxide
45.  $\text{HBr}$  Hydrobromic acid
46.  $\text{HClO}_2$  chlorous acid
47.  $\text{Mg}(\text{MnO}_4)_2$  Magnesium Permanganate
48.  $\text{P}_4\text{Cl}_8$  Tetraphosphorus octachloride
49.  $\text{Ca}_3\text{N}_2$  Calcium Nitride
50.  $\text{SnS}_2$  Tin<sup>(IV)</sup> Sulfide

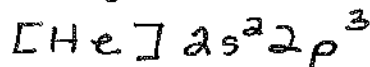
### Writing Formulas

51. hydroiodic acid  $HI$
52. hydrosulfuric acid  $H_2S$
53. calcium sulfide  $CaS$
54. dinitrogen pentoxide  $N_2O_5$
55. aluminum sulfate  $Al_2(SO_4)_3$
56. sulfurous acid  $H_2SO_3$
57. nitric acid  $HNO_3$
58. dihydrogen monoxide  $H_2O$
59. trisulfur monochloride  $S_3Cl$
60. selenium monoxide  $SeO$
61. hydrotelluric acid  $H_2Te$
62. tin(IV) sulfite  $Sn(SO_3)_2$
63. carbonic acid  $H_2CO_3$
64. barium acetate  $Ba(C_2H_3O_2)_2$
65. zinc(II) periodate  $Zn(H_2PO_8)_2$
66. chloric acid  $HClO_3$
67. silicon pentanitride  $Si_3N_5$
68. bromic acid  $HBrO_3$
69. pentaphosphorous heptoxide  $P_5O_7$
70. sodium oxide  $Na_2O$
71. hydrofluoric acid  $HF$
72. calcium bromate  $Ca(BrO_3)_2$
73. hydrobromic acid  $HBr$
74. silicon dioxide  $SiO_2$
75. nickel(III) sulfide  $Ni_2S_3$
76. manganese(II) phosphate  $Mn_3(PO_4)_2$
77. silver(I) iodate  $KIO_3$
78. hydrobromic acid  $HBr$
79. diboron tetrabromide  $B_2Br_4$
80. phosphoric acid  $H_3PO_4$
81. potassium carbonate  $K_2CO_3$
82. ammonium oxide  $(NH_4)_2O$
83. carbon monoxide  $CO$
84. aluminum sulfite  $Al_2(SO_3)_3$
85. zinc(II) nitrate  $Zn(NO_3)_2$
86. sodium carbonate  $Na_2CO_3$
87. sodium permanganate  $NaMnO_4$
88. diphosphorus pentoxide  $P_2O_5$
89. lead(IV) sulfide  $PbS_2$
90. copper(I) sulfate  $Cu_2SO_4$
91. aluminum sulfate  $Al_2(SO_4)_3$
92. ammonium nitride  $(NH_4)_3N$
93. magnesium hydroxide  $Mg(OH)_2$
94. calcium cyanide  $Ca(CN)_2$
95. nitric acid  $HNO_3$
96. sulfuric acid  $H_2SO_4$
97. xenon tetrafluoride  $XeF_4$
98. pentaphosphorus hexafluoride  $P_5F_6$
99. cobalt(II) hypochlorite  $Co(ClO)_2$
100. aluminum bicarbonate  $Al(HCO_3)_3$

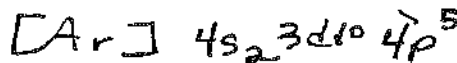
Chemical Bonding Worksheet #1 (Ionic Bonding)

1. Write the noble gas electron configuration for the following:

a. nitrogen atom



b. bromine atom



2. How many valence electrons do the above atoms have? Label that next to each configuration.

a. N - 5

b. Br - 7

3. Draw the Lewis valence electron dot structures for the following atoms:

a. nitrogen atom



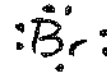
b. sodium atom



c. sulfur atom



d. bromine atom



e. magnesium atom



f. aluminum atom



g. carbon atom



h. neon atom



4. When the following become IONS what will the charge be?

a. nitrogen

-3

b. sodium

+1

c. sulfur

-2

d. bromine

-1

e. magnesium

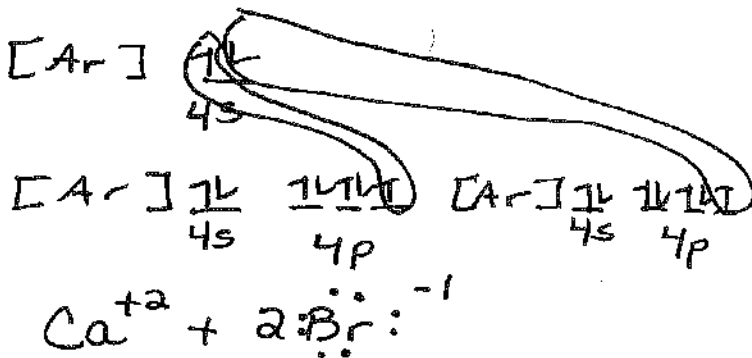
+2

f. aluminum

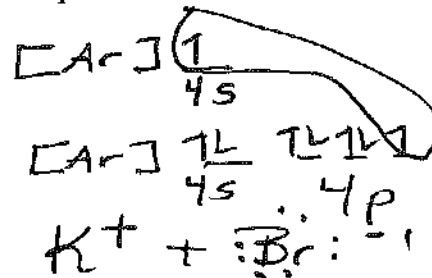
+3

5. Draw the noble gas orbital notation AND electron dot structures showing the transfer of electrons that occurs when the following form ionic compounds:

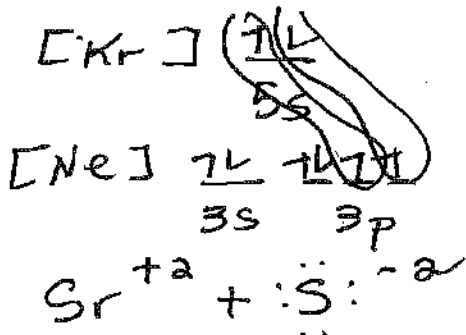
a. calcium and bromine



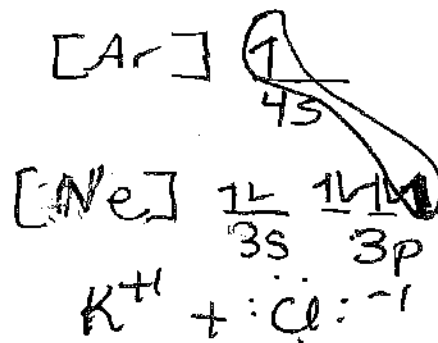
b. potassium and bromine



c. strontium and sulfur



d. potassium and chlorine



Chemical Bonding Worksheet #2 (Types of Bonds)

1. Using the table of electronegativity values, calculate the EN difference for the atoms that bonded in the following table. Then state whether the bond is nonpolar covalent, polar covalent, or ionic. State which atom has the greater EN, and in your drawing show which atom is partially positive or partially negative.

Formula	EN difference	Type of bond	Drawing and Shape
PCl <sub>3</sub>	.9	Polar	$  \begin{array}{c}  \text{:Cl:} \\    \\  \text{:Cl: P :} \\    \\  \text{:Cl:}  \end{array}  $ trigonal Pyramidal
Br <sub>2</sub> O	.7	Polar	$  \begin{array}{c}  \text{:Br:} \\    \\  \text{:O:} \\    \\  \text{:Br:}  \end{array}  $ Bent
SCH <sub>2</sub>	.5	polar	$  \begin{array}{c}  \text{:Cl:} \\    \\  \text{:S:} \\    \\  \text{:Cl:}  \end{array}  $ Bent
Br <sub>2</sub>	0	nonpolar	$  \begin{array}{c}  \text{:Br:} \\    \\  \text{:Br:}  \end{array}  $ linear
CF <sub>4</sub>	1.5	<del>polar</del> nonpolar (hybridization)	$  \begin{array}{c}  \text{:F:} \\    \\  \text{:F: C :F:} \\    \\  \text{:F:}  \end{array}  $ tetrahedral
Na <sub>2</sub> S	1.6	<del>polar</del> ionic	$  2\text{Na}^{+1} + \text{:S:}^{-2}  $
CaO	1.5	<del>polar</del> ionic	$  \text{Ca}^{+2} + \text{:O:}^{-2}  $