

Binary Molecular Nomenclature

Rules for Binary Molecular Compounds	Prefixes
1. The naming system is for compounds composed of two <u>nonmetallic</u> elements.	1 – mono
2. The first element keeps its name	2 – di
a. The first element gets a prefix if it has a subscript in the formula	3 – tri
3. The second element gets the <i>-ide</i> suffix (ending)	4 – tetra
a. The second element ALWAYS gets a prefix	5 – penta
	6 – hexa

Compound Name	Compound Formula
Carbon dioxide	
Carbon monoxide	
Diphosphorus pentoxide	
Dinitrogen monoxide	
Silicon dioxide	
Carbon tetrabromide	
Sulfur dioxide	
Phosphorus pentabromide	
Iodine trichloride	
Nitrogen triiodide	
Dinitrogen trioxide	

Compound Formula	Compound Name
N ₂ O ₄	
SO ₃	
NO	
NO ₂	
As ₂ O ₅	
PCl ₃	
CCl ₄	
H ₂ O	
SeF ₆	

For answers to this worksheet, [Click Here](#)

Type I Binary Compounds contain Group I, II, and III metals with non-metal ions. Show the correct name for the following compounds.

Give correct names for these Type I binary compounds

KCl	MgO
K ₂ O	AlCl ₃
CaO	BaS
MgCl ₂	Al ₂ S ₃
NaH	SrF ₂
ZnS	MgI ₂
RbBr	CaSe
Al ₂ O ₃	BaBr ₂
Na ₃ N	CsCl
Ca ₂ C	Mg ₃ P ₂
KI	CaCl ₂

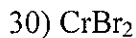
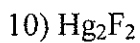
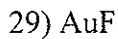
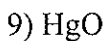
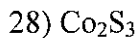
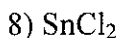
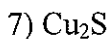
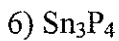
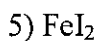
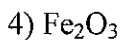
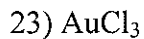
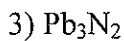
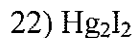
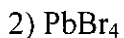
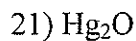
Give correct formulas for these Type I binary compounds

calcium iodide	magnesium phosphide
calcium hydride	sodium chloride
magnesium fluoride	barium oxide
cadmium bromide	aluminum arsenide
sodium nitride	calcium sulfide
rubidium oxide	potassium selenide
barium nitride	sodium iodide
lithium chloride	lithium sulfide
silver sulfide	calcium carbide
aluminum nitride	sodium hydride
cesium fluoride	magnesium nitride

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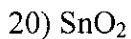
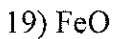
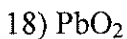
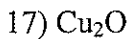
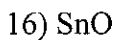
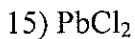
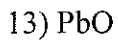
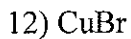
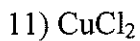
Practice Problems (Answer using the Stock system.)

Write the correct name for:



Answers to Set One

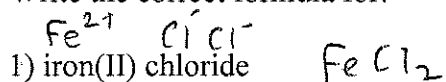
Answers to Set Three



Answers to Set Two

Practice Problems (Answer using the Stock system.)

Write the correct formula for:



2) copper(I) sulfide

3) lead(IV) iodide

4) tin(II) fluoride

5) mercury(I) bromide

6) tin(II) oxide

7) chromium(III) oxide

8) gold(I) iodide

9) manganese(II) nitride

10) cobalt(III) phosphide

21) tin(II) sulfide

22) mercury(I) sulfide

23) gold(III) bromide

24) manganese(II) oxide

25) chromium(II) chloride

26) lead(IV) nitride

27) cobalt(III) oxide

28) copper(II) iodide

29) tin(IV) fluoride

30) iron(II) phosphide

Special words about mercury

Answers to Set One

11) iron(III) chloride

12) copper(II) sulfide

13) lead(II) bromide

14) tin(IV) iodide

15) mercury(II) fluoride

16) tin(IV) oxide

17) manganese(III) chloride

18) chromium(II) nitride

19) gold(III) oxide

20) cobalt(II) phosphide

Answers to Set Three

Answers to Set Two

Inorganic Nomenclature Worksheet

1. ammonium sulfide
2. sodium nitrate
3. cupric bromide
4. aluminum sulfate
5. potassium nitrate
6. ferrous carbonate
7. lead(II) phosphate
8. diphosphorus pentoxide
9. cupric hydroxide
10. calcium fluoride
11. nickel nitrate
12. silver cyanide
13. ammonium sulfite
14. zinc sulfate
15. tin(II) chloride
16. antimony(III) chloride
17. silver sulfide
18. magnesium hydroxide
19. ammonium carbonate
20. nickel acetate
21. sodium chromate
22. chromic bisulfate
23. potassium permanganate
24. silver perchlorate
25. potassium phosphate
26. nickel iodide
27. mercurous oxide
28. lead(II) chlorite
29. hydrogen iodide
30. iron(II) bisulfite
31. magnesium nitrate
32. iron(III) chromate
33. iron(II) chromate
34. copper(II) hydroxide
35. cuprous carbonate
36. chromic acetate
37. calcium chlorate
38. ammonium oxide
39. aluminum perchlorate
40. zinc bicarbonate
41. sodium phosphate
42. silver hypochlorite
43. ammonium phosphate
44. ferrous chlorite
45. potassium sulfide
46. tin(IV) bromide
47. lithium chromate
48. magnesium bisulfate
49. ferrous phosphate
50. calcium sulfate dihydrate
51. aluminum acetate
52. calcium chloride dihydrate
53. barium chromate
54. cobaltic chloride
55. barium chloride dihydrate
56. sulfurous acid
57. potassium hydroxide
58. zinc bisulfite
59. sodium sulfite
60. cobaltous sulfate
61. ferric oxide
62. silver phosphate
63. sodium hypochlorite
64. ammonium chromate
65. barium carbonate
66. calcium iodide
67. cupric sulfate
68. cuprous chloride
69. ferric carbonate
70. zinc phosphate
71. sodium nitrite
72. silver oxide
73. nickel bromide
74. magnesium oxide
75. mercuric perchlorate
76. lithium hypochlorite
77. oxygen difluoride
78. cobalt(II) hydrogen sulfate
79. acetic acid (see #128)
80. barium hypochlorite
81. ammonium hydroxide
82. cobalt(II) iodide
83. chromium(II) bicarbonate
84. sodium hydroxide
85. silver nitrate
86. mercury(II) nitrate
87. hydrochloric acid
88. aluminum bisulfite
89. cobalt(III) hydrogen sulfate
90. ferric hydrogen carbonate
91. phosphorus pentabromide
92. nickel chloride hexahydrate
93. ammonium aluminum sulfate
94. iron(III) hydrogen carbonate
95. mercury(I) hydrogen phosphate
96. plumbic hydrogen carbonate
97. mercuric hydrogen carbonate
98. mercurous hydrogen phosphate
99. copper(II) sulfate pentahydrate
100. chromic dihydrogen phosphate
101. sodium acetate
102. zinc sulfite
103. silver bicarbonate
104. potassium iodide
105. lead(IV) chlorite
106. mercurous chromate
107. lead(II) nitrite
108. potassium dichromate
109. magnesium carbonate
110. calcium bicarbonate
111. aluminum hydroxide
112. cobaltous oxide
113. ferric permanganate
114. ammonium chromate
115. nitrogen triiodide
116. sulfur trioxide
117. ammonium dichromate
118. iron(III) bicarbonate
119. ammonium perchlorate
120. cobaltic acetate
121. cobaltous hydroxide
122. iron(II) chromate
123. ferric bromide
124. zinc sulfate
125. boron phosphide
126. ferric bicarbonate
127. cupric bisulfate
128. acetic acid (diff. from 79)
129. barium bisulfite
130. nitric acid
131. calcium sulfide
132. copper(I) bisulfate
133. zinc permanganate
134. ferric carbonate
135. hydrobromic acid
136. hydrocyanic acid
137. hydrogen cyanide
138. sulfuric acid
139. copper(I) sulfate
140. chromium(III) oxide
141. aluminum oxide
142. cobaltous bisulfate
143. barium carbonate
144. mercuric chloride
145. ferrous chromate
146. cupric hydroxide
147. perchloric acid
148. ferric phosphate
149. lead(II) oxide
150. cobaltic chlorate

If a formula can be named more than one correct way, then give all. For example, $\text{Fe}(\text{HCO}_3)_3$ can be named four different ways. They are iron(III) bicarbonate, iron(III) hydrogen carbonate, ferric bicarbonate, and ferric hydrogen carbonate. The second way would be best.

151. HgF_2	191. KF	231. N_2O_5	271. NaOH	290. XeF_4	328. $\text{Be}(\text{ClO}_4)_2$
152. KCl	192. CaSO_4	232. SnCrO_4	272. NI_3	291. $\text{Hg}(\text{OH})_2$	329. $(\text{NH}_4)_2\text{Cr}_2\text{O}_7$
153. KMnO_4	193. HCl	233. Al_2O_3	273. ClF_3	292. CaH_2	330. $\text{Ba}(\text{BrO}_3)_2$
154. KClO_4	194. SbCl_3	234. CuCO_3	274. P_3N_5	293. As_4O_6	331. AuCl_3
155. ZnO	195. As_4O_{10}	235. ClO_2	275. UF_6	294. BN	332. Al_2S_3
156. $\text{Ba}(\text{OH})_2$	196. NH_4Cl	236. CuS	276. NBr_3	295. CoS	333. Na_2HPO_4
157. NH_4MnO_4	197. NH_4NO_3	237. MgI_2	277. Cl_2O_3	296. N_2O_4	334. $\text{Mg}_3(\text{PO}_4)_2$
158. CaCO_3	198. IF_5	238. CoCl_3	278. CsF	297. H_3BO_3	335. CuSO_3
159. $\text{Ba}_3(\text{PO}_4)_2$	199. NaHCO_3	239. NaCN	279. CO	298. I_2O_5	336. $\text{KAl}(\text{C}_2\text{O}_4)_2$
160. Fe_2O_3	200. $\text{Ba}(\text{OH})_2$	240. Hg_3N_2	280. Cu_2S	299. PbO	337. $\text{Cr}_2(\text{SO}_3)_3$
161. CoF_3	201. FeCl_3	241. BrO_3	281. KHCO_3	300. NaBr	338. HClO
162. H_2CO_3	202. HF	242. SiF_4	282. SbCl_5	301. Li_2CrO_4	339. HClO_2
163. K_2SO_4	203. PbSO_4	243. Sb_2O_5	283. CO_2	302. ICl	340. HClO_3
164. NaHSO_4	204. KrF_2	244. LiH	284. HgO	303. SO_3	341. HClO_4
165. PF_5	205. NaCl	245. SF_6	285. PCl_3	304. Hg_2O	342. $\text{Mn}(\text{IO}_3)_2$
166. Ag_2O	206. P_2O_5	246. SnI_4	286. PBr_5	305. NaH	343. KBrO_3
167. $\text{Pb}(\text{ClO}_2)_2$	207. AlBr_3	247. KOH	287. IF_7	306. OsO_4	344. $\text{Fe}(\text{ClO}_4)_3$
168. Cu_2CrO_4	208. $\text{Ba}(\text{NO}_3)_2$	248. K_2O	288. Cl_2O	307. XeF_2	345. $\text{Cr}(\text{OH})_3$
169. $\text{Ca}(\text{ClO}_4)_2$	209. BrF_5	249. H_2SO_4	289. CCl_4	308. $\text{Ca}(\text{C}_2\text{H}_3\text{O}_2)_2$	
170. $\text{HC}_2\text{H}_3\text{O}_2$	210. P_4O_6	250. lithium oxide		309. $\text{NaC}_2\text{H}_3\text{O}_2$	
171. LiI	211. FePO_4	251. xenon trioxide		310. $\text{Al}(\text{OH})_3$	
172. $\text{Al}_2(\text{SO}_4)_3$	212. Hg_2SO_4	252. gold(I) chloride		311. Li_2HPO_4	
173. HBr	213. KH	253. gold(I) cyanide		312. $\text{Ca}(\text{NO}_3)_2$	
174. $\text{Hg}_2(\text{ClO})_2$	214. $\text{Co}_2(\text{SO}_3)_3$	254. sodium oxide		313. $\text{Ni}(\text{ClO}_4)_2$	
175. CrCl_3	215. N_2O_3	255. potassium chlorate		314. $\text{Mn}(\text{NO}_3)_2$	
176. H_3PO_4	216. N_2O	256. mercurous nitrite		315. $\text{Au}(\text{H}_2\text{PO}_4)_3$	
177. LiMnO_4	217. $\text{Fe}(\text{NO}_2)_3$	257. nickel(II) fluoride		316. $\text{Al}(\text{C}_2\text{H}_3\text{O}_2)_3$	
178. $\text{Fe}_2(\text{HPO}_4)_3$	218. $\text{Sn}_3(\text{PO}_4)_2$	258. potassium cyanide		317. $\text{KAl}(\text{SO}_4)_2$	
179. Na_2CO_3	219. H_2O_2	259. manganese dioxide		318. $\text{Al}(\text{MnO}_4)_3$	
180. $\text{Mg}(\text{HCO}_3)_2$	220. $\text{Be}(\text{OH})_2$	260. osmium tetrachloride		319. $(\text{NH}_4)_3\text{PO}_4$	
181. $\text{Sn}_3(\text{PO}_4)_4$	221. $\text{Sr}(\text{HCO}_3)_2$	261. rubidium carbonate		320. $\text{CoSO}_4 \cdot 6 \text{H}_2\text{O}$	
182. HNO_3	222. $\text{Sr}(\text{OH})_2$	262. trisulfur dinitride		321. $\text{MgCl}_2 \cdot 6 \text{H}_2\text{O}$	
183. ZnCl_2	223. P_4S_{10}	263. nitrogen trichloride		322. $\text{CuSO}_4 \cdot 5 \text{H}_2\text{O}$	
184. NaH_2PO_4	224. Hg_2O_2	264. vanadium(V) oxide		323. $\text{NaHS} \cdot \text{H}_2\text{O}$	
185. Hg_2Cl_2	225. $\text{Hg}_2(\text{OH})_2$	265. selenium tetrafluoride		324. $\text{MgSO}_4 \cdot 9 \text{H}_2\text{O}$	
186. $\text{Fe}(\text{NO}_2)_2$	226. NH_4F	266. stannous hypochlorite		325. $\text{NaH}_2\text{PO}_4 \cdot 9 \text{H}_2\text{O}$	
187. CuNH_4PO_4	227. XeF_6	267. tellurium hexafluoride		326. $\text{Na}_2\text{CrO}_4 \cdot 4 \text{H}_2\text{O}$	
188. NaMgPO_4	228. $\text{K}_2\text{Cr}_2\text{O}_7$	268. lanthanum(III) phosphate		327. $\text{Pb}(\text{CH}_3\text{COO})_2 \cdot 3 \text{H}_2\text{O}$	
189. $\text{Sn}(\text{HCO}_3)_4$	229. NH_4OH	269. sodium hydrogen sulfate monohydrate			
190. NaMnO_4	230. $(\text{NH}_4)_3\text{PO}_4$	270. chromium(III) hydrogen phosphate			

Acid Nomenclature Worksheet Name _____

Write the formula for each of the acids listed below:

1. Nitric acid	
2. Chloric acid	
3. Acetic acid	
4. Hydrobromic acid	
5. Sulfurous acid	
6. Chlorous acid	
7. Hydrochloric acid	
8. Phosphoric acid	
9. Nitrous acid	
10. Hydrofluoric acid	
11. Perchloric acid	
12. Hydroiodic acid	
13. Phosphorous acid	
14. Carbonic acid	
15. Sulfuric acid	

Name each of the following acids:

16. HClO_4	
17. H_3PO_4	
18. $\text{HCl}_{(\text{aq})}$	
19. H_2SO_4	
20. HNO_2	
21. $\text{HI}_{(\text{aq})}$	
22. $\text{HC}_2\text{H}_3\text{O}_2$	
23. $\text{HF}_{(\text{aq})}$	
24. H_3PO_3	
25. HClO_3	
26. H_2CO_3	
27. H_2SO_3	
28. HClO_2	
29. HNO_3	
30. $\text{HBr}_{(\text{aq})}$	