P E2 (pg 1 of 2) Writing & Naming Ionic Formulas

Name_____

(How do you know when you need the Roman Numeral?)

Write the formula or the name (as appropriate) for the following compounds.

1. iron(II) fluoride
2. lead(IV) chloride
3. copper(I) oxide
4. chromium (VI) sulfide
5. antimony(V) nitride
6. MnO_2
7. CuO
8. InF_3
9. Cr_2S_3
10. CuCl
11. nickel(II) bromide
12. tin(IV) iodide
13. sodium oxide
14. manganese (VII) sulfide
15. vanadium(V) nitride
16. PbO_2
17. FeS
18. $AlCl_3$
19. Mn_2S_3
20. HgCl

Answers - Writing & Naming Ionic Compounds

1. Fe^{2+} F^{-} criss-cross to get FeF_2
2. Pb^{4+} Cl^{-} criss-cross to get $PbCl_4$
3. Cu^{+} O^{2-} criss-cross to get Cu_2O
4. Cr^{6+} S^{2-} criss-cross to get CrS_3
5. Sb^{5+} N^{3-} criss-cross to get Sb_3N_5
6. Since the oxide carries a 2− charge, and there is one of each ion, the charge must be the same magnitude, opposite charge, thus Mn must be 2+, resulting in manganese(IV) oxide
7. Since the oxide carries a 2− charge, and there is one of each ion, the charge must be the same magnitude, opposite charge, thus Cu must be 2+, resulting in copper(II) oxide
8. Indium always carries a 3+ charge, thus there is no need for a Roman Numeral, thus simply: indium fluoride
9. Since the sulfide carries a 2− charge, 3 of them × 2− equals 6−, and the chromium ions total charge must be opposite in sign, but equal in magnitude. Thus 2 chromium ions × "what charge" = 6+? Thus the chromium must be 3+, resulting in chromium(III) sulfide
10. Since the chloride carries a 1− charge, and there is one of each ion, the charge must be the same magnitude, opposite charge, thus Cu must be 1+, resulting in copper(I) chloride
11. Ni^{2+} Br^{-} criss-cross to get $NiBr_2$
12. Sn^{4+} I^{-} criss-cross to get SnI_4
13. Na^{+} O^{2-} criss-cross to get Na_2O
14. Mn^{7+} S^{2-} criss-cross to get Mn_2S_7
15. V^{5+} N^{3-} criss-cross to get V_3N_5
16. Since the oxide ion carries a 2− charge, 2 of them × 2− equals 4−, and the lead ions total charge must be opposite in sign, but equal in magnitude. Thus the one lead ion must be 4+ charge, resulting in lead(IV) oxide
17. Since the oxide carries a 2− charge, and there is one of each ion, the charge must be the same magnitude, opposite charge, thus Fe must be 2+, resulting in iron(II) sulfide
18. Aluminum always carries a 3+ charge, thus there is no need for a Roman Numeral, resulting in aluminum chloride
19. Since the sulfide carries a 2− charge, 3 of them × 2− equals 6−, and the manganese ions total charge must be opposite in sign, but equal in magnitude. Thus 2 manganese ions × "what charge" = 6+? Thus the manganese must be 3+, resulting in manganese(III) sulfide
20. Since the chloride carries a 1− charge, and there is one of each ion, the charge must be the same magnitude, opposite charge, thus Hg must be 1+, resulting in mercury(I) chloride