Name:_____

First Semester Review

Ionic Compounds

Name the following compounds

1. $CaCO_3$ _____
2. KCl _____
3. $MgCl_2$ _____
4. $FeCl_3$ _____
5. $Al(OH)_3$ _____
6. $CuC_2H_3O_2$ _____
7. $CaCl_2$ _____
8. Fe_2O_3 _____
9. $(NH_4)_3PO_4$ _____
10. Na_2SO_4 _____
11. $HgCl$ _____
12. $Mg(NO_2)_2$ _____
13. $CuSO_4$ _____
14. $ZnSO_4$ _____
15. K_2SO_4 _____

Write the formulas of the compounds produced by the ions on the table.

	Cl^-	OH^-	SO_4^{2-}	PO_4^{3-}
Na^+				
NH_4^+				
Ca^{2+}				
Zn^{2+}				
Fe^{3+}				
Al^{3+}				

Covalent Compounds:

Name the following covalent compounds:

1. CO_2 _____
2. CO _____
3. SO_2 _____
4. SO_3 _____
5. N_2O _____
6. NO _____
7. N_2O_3 _____
8. N_2O_4 _____
9. PCl_5 _____
10. SCl_6 _____

Mixed Practice

Identify if each compound is ionic (I) or covalent (C) and give the appropriate formula

1. _____ammonium phosphate _____
2. _____iron (II) oxide _____
3. _____iron (III) oxide _____
4. _____carbon monoxide _____
5. _____calcium chloride _____
6. _____potassium nitrate _____
7. _____magnesium hydroxide _____
8. _____aluminum sulfate _____
9. _____copper (II) sulfate _____
10. _____lead (IV) sulfide _____
11. _____diphosphorus pentoxide_____
12. _____potassium peroxide _____
13. _____sodium carbonate _____
14. _____zinc nitrate _____
15. _____aluminum sulfite _____

Acids

Name the following acids:

1. HNO_3 _____
2. HCl _____
3. H_2SO_4 _____
4. H_2SO_3 _____
5. $HC_2H_3O_2$ _____
6. HBr _____
7. HNO_2 _____
8. H_3PO_4 _____
9. H_2S _____
10. H_2CO_3 _____

Write the formulas for the following acids:

1. Sulfuric acid _____
2. Nitric acid _____
3. Hydrochloric acid _____
4. Acetic acid _____
5. Hydrofluoric acid _____
6. Phosphorous acid _____
7. Carbonic acid _____
8. Nitrous acid _____
9. Phosphoric acid _____
10. Hydrosulfuric acid _____

Molar Mass

Determine if the compound is Ionic, Covalent, or an Acid. Determine the molar mass of each compound, be sure to include units!

1. $KMnO_4$ _____ _____
2. KCl _____ _____
3. Na_2SO_4 _____ _____
4. $Ca(NO_3)_2$ _____ _____
5. $Al_2(SO_4)_3$ _____ _____
6. $(NH_4)_3PO_4$ _____ _____
7. $CuSO_4$ _____ _____
8. $Mg_3(PO_4)_2$ _____ _____
9. $Zn(C_2H_3O_2)_2$ _____ _____
10. $Zn_3(PO_4)_2$ _____ _____
11. H_2CO_3 _____ _____
12. $HgCr_2O_7$ _____ _____
13. $Ba(ClO_3)_2$ _____ _____
14. $Fe_2(SO_3)_2$ _____ _____
15. $NH_4C_2H_3O_2$ _____ _____

Significant Figures

Give the number of significant figures

1. 420.0 _____
2. 7589 _____
3. 432506.43 _____
4. 0.0000476 _____
5. 0.03 _____
6. 35.17 _____
7. 0.00004 _____
8. 8671.5 _____
9. 460.046 _____
10. 0.0000400 _____
11. 32.00 _____
12. 3.50 _____
13. 70.0400 _____
14. 0.21 _____
15. 0.0103 _____
16. 30.071 _____
17. 12005 _____
18. 203.07 _____
19. 963.250 _____
20. 1.36 _____

Express you answer in the correct number of significant figures

1. 2.90 x 0.01733 x 920 = _____
2. (72 x 4.022)/ 9.03 = _____
3. 657.89/32.9= _____
4. 34.567 x 89.2 x 54 = _____
5. 789.235/ 47.36 = _____
6. 0.3000 x 120 x 678 = _____
7. (3500)(78.7)(45.65) = _____
8. 890/0.500 = _____
9. $(1.58 \times 10^{12})/(9.44 \times 10^{9})$ = _____
10. $(5.2 \times 10^{5}) \times (7 \times 10^{4})$ = _____

Chemical Reactions

Balance the chemical reactions and determine the type of reaction

1. ____ Mg + ____ $Zn(NO_3)_2$ → ____ Zn ____ $Mg(NO_3)_2$ _____
2. ____ Ba + ____ $AgNO_3$ → ____ Ag + ____ $Ba(NO_3)_2$ _____
3. ____ NH_3 → ____ N_2 + ____ H_2 _____
4. ____ MgO → ____ Mg + ____ O_2 _____
5. ____ K + ____ Cl_2 → ____ KCl _____
6. ____ Al + ____ O_2 → ____ Al_2O_3 _____
7. ____ C_2H_6 + ____ O_2 → ____ CO_2 + ____ H_2O _____
8. ____ Li_2S + ____ AlP → ____ Al_2S_3 ____ Li_3P _____
9. ____ K_2S + ____ PbO_2 → ____ K_2O + ____ PbS_2 _____
10. ____ C_6H_{14} + ____ O_2 → ____ CO_2 + ____ H_2O _____
11. ____ Al + ____ $CuSO_4$ → ____ $Al_2(SO_4)_3$ + ____ Cu _____
12. ____ Br_2 + ____ NaF → ____ F_2 + ____ NaBr _____
13. ____ Li + ____ $CuCO_3$ → ____ Cu + ____ Li_2CO_3 _____

14. Hydrogen gas reacts with iodine gas to produce hydroiodic acid.

    _____ _____

15. Lithium metal reacts with hydrochloric acid to produce lithium chloride and hydrogen gas.

    _____ _____

16. Sodium Carbonate decomposes to produce sodium oxide and carbon dioxide.

    _____ _____

17. Magnesium hydroxide decomposes to produce magnesium oxide and water.

    _____ _____

18. Copper reacts with chlorine gas to produce copper (II) chloride.

    _____ _____

19. Aluminum reacts with iron (III) oxide to yield aluminum oxide and iron.

    _____ _____

20. Carbon tetrahydride burns in oxygen gas to produce carbon dioxide and water.

    _____ _____