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|  |  | Sample Ionic EquationsWrite the complete ionic and net ionic equations for each of the following reactions:1. 3 (NH4)2CO3 (aq) + 2 Al(NO3)3 (aq) --> 6 NH4NO3 (aq) + Al2(CO3)3 (s)Complete Ionic Equation:6 NH4+ (aq) + 3 CO32- (aq) + 2 Al3+(aq) + 6 NO3-(aq) --> 6 NH4+ (aq) + 6 NO3- (aq) + Al2(CO3)3 (s)Net Ionic Equation:2 Al3+(aq) + 3 CO32- (aq) --> Al2(CO3)3 (s)
2. 2 NaOH (aq) + H2SO4 (aq) --> Na2SO4 (aq) + 2 H2O (l)Complete Ionic Equation:2 Na+ (aq) + 2 OH- (aq) + 2 H+ (aq) + SO42- (aq) --> 2 Na+(aq) + SO42- (aq) + 2 H2O (l)Net Ionic Equation:2 OH- (aq) 2 H+ (aq) --> 2 H2O (l)OH- (aq) + H+ (aq) --> H2O (l)Notice that you should always use the lowest whole number ratio of the reactants and products. In this case, all of the coefficients were divided by two to get the final net ionic equation.
3. Mg (s) + 2 HCl (aq) --> MgCl2 (aq) + H2 (g)Complete Ionic Equation:Mg(s) + 2 H+ (aq) + 2 Cl- (aq) --> Mg2+ (aq) + 2 Cl- (aq) + H2(g)Net Ionic Equation:Mg(s) + 2 H+ (aq) --> Mg2+ (aq) + H2 (g)Notice that Mg(s) and Mg2+ are NOT the same. The former is elemental while the latter is an ion. The same thing goes for H2 (g) and H+.
4. Zn (s) + CuSO4 (aq) --> ZnSO4 (aq) + Cu (s)Complete Ionic Equation:Zn (s) + Cu2+ (aq) + SO42- (aq) --> Zn2+ (aq) + SO42- (aq) + Cu (s)Net Ionic Equation:Zn (s) + Cu2+ (aq) --> Zn2+ (aq) + Cu (s)Zn(s) and Zn2+ (aq) are not the same. One is elemental while the other is a monoatomic ion. The same applies to Cu(s) and Cu2+ (aq).
5. Na2CO3 (aq) + 2 HNO3 (aq) --> 2 NaNO3 (aq) + H2O (l) + CO2 (g)Complete Ionic Equation:2 Na+ (aq) + CO32- (aq) + 2 H+ (aq) + 2 NO3- (aq) --> 2 Na+(aq) + 2 NO3- (aq) + H2O (l) + CO2 (g)Net Ionic Equation:CO32- (aq) + 2 H+ (aq) --> H2O (l) + CO2 (g)
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