12th edition

Chapter 4: 4.2, 4.7, 4.15, 4.17, 4.19, 4.21, 4.25, 4.27, 4.35, 4.37, 4.39, 4.41, 4.49, 4.51, 4.61, 4.69, 4.71, 4.73, 4.77, 4.79, 4.81, 4.87.

11th edition:

Chapter 4: 4.3, 4.7, 4.15, 4.17, 4.19, 4.21, 4.25, 4.27, 4.35, 4.37, 4.39, 4.41, 4.49, 4.51, 4.61, 4.69, 4.71, 4.73, 4.77, 4.79, 4.81, 4.87.

Additional Problems

Also, predict the products and write balanced net ionic equations for the following. When writing the ionic and net ionic equations, remember to write all molecular, weak electrolyte, and insoluble electrolyte species in "molecular" form; i.e., do not break them up into ions. Answers for these have been posted.

- (a) $Ni(NO_3)_2(aq) + H_2S(g)$
- (b) $H_3PO_4(aq) + Ca(OH)_2(aq)$
- (c) $NaNO_2(aq) + HBr(aq)$
- (d) $CuS(s) + HClO_4(aq)$
- (e) $Pb(C_2H_3O_2)_2(aq) + HCl(aq)$