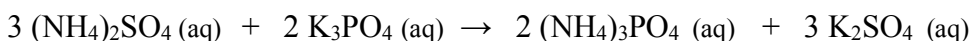




b) ammonium sulfate + potassium phosphate

double displacement reaction (write as whole molecules):

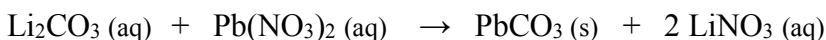


net ionic equation (show only the ions that form the precipitate):

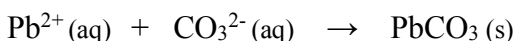
-because no precipitate forms, all of the ions are "spectator ions" so there is no net ionic equation

c) lithium carbonate + lead (II) nitrate

double displacement reaction (write as whole molecules):

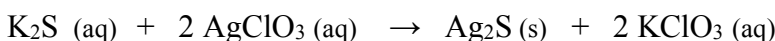


net ionic equation (show only the ions that form the precipitate):

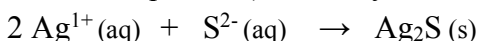


d) potassium sulfide + silver (II) chlorate

double displacement reaction (write as whole molecules):



net ionic equation (show only the ions that form the precipitate):



5.  $K_{sp} = 3.5 \times 10^{-2}$ .

6. molar solubility is  $4.0 \times 10^{-5}$  mol/L; this is equal to 0.022 g/L or 22 mg/L

7.  $Q_{sp} = 2.4 \times 10^{-5}$ ; this is less than  $K_{sp}$  so **no** ppte will form

8.  $Q_{sp} = 4.1 \times 10^{-3}$ ; this is greater than  $K_{sp}$  so a ppte will form

9. molar solubility of  $\text{BaSO}_4$  in 1.20 M  $\text{H}_2\text{SO}_4$  is  $9.0 \times 10^{-11}$  mol/L

10. molar solubility of  $\text{CaCO}_3$  in 0.500 M  $\text{Ca}(\text{NO}_3)_2$  is  $6.72 \times 10^{-9}$  mol/L

11. molar solubility of  $\text{BaF}_2$  is  $3.58 \times 10^{-3}$  mol/L; this is 0.628 g of  $\text{BaF}_2$  in one litre

b)  $\text{BaF}_2$  will be more soluble in cold water (the eq'm will shift to the right to produce more heat if cold water is used because the forward reaction is exothermic)