Review Writing Net Ionic Equations

For each of the following examples write the molecular, ionic and net ionic equation!

Phosphoric acid is added to aqueous potassium hydroxide…

$H_3PO_{4\,(aq)}$ + $KOH_{\,(aq)}$ → predict products and check for precipitates

$H_3PO_{4\,(aq)}$ + 3 $KOH_{\,(aq)}$ → $K_3PO_{4\,(aq)}$ + 3 H_2O

or

$H_3PO_{4\,(aq)}$ + $KOH_{\,(aq)}$ → $KH_2\,PO_{4\,(aq)}$ + H_2O

Since $H_3PO_{4\,(aq)}$ is a weak acid (stays together) and KOH is a strong base (breaks up)

Finishing

H_3PO_4 + $3K^+$ + $3OH^-$ → $3K^+$ + PO_4^{3-} + 3 H_2O

OR

H_3PO_4 + K^+ + OH^- → K^+ + $H_2PO_4^-$ + H_2O

and finally for the net ionic equations…

H_3PO_4 + 3 OH^- → PO_4^{3-} + 3 H_2O

OR

H_3PO_4 + OH^- → $H_2PO_4^-$ + H_2O

Aqueous silver nitrate is added to a sodium chloride (saline) solution…

$AgNO_{3\,(aq)}$ + $NaCl_{(aq)}$ → predict products and check for precipitates

$AgNO_{3\,(aq)}$ + $NaCl_{(aq)}$ → $AgCl_{(s)}$ + $NaNO_{3(aq)}$

Now write ions where appropriate…

$Ag^+ + NO_3^- + Na^+ + Cl^- \rightarrow AgCl + Na^+ + NO_3^-$

And finally

$Ag^+ + Cl^- \rightarrow AgCl$

YOU TRY THESE-write the net ionic equations

1. Solutions of zinc nitrate and potassium hydroxide are mixed…
2. Perchloric acid is titrated with sodium hydroxide…
3. Aqueous sodium carbonate is combined with cobalt (II) nitrate solution…

The Answers

1. **$Zn^{2+} + 2OH^- \rightarrow Zn(OH)_2$**
2. **$H^+ + OH^- \rightarrow H_2O$**
3. **$Co^{2+} + CO_3^{2-} \rightarrow CoCO_3$**