**Practice Problems**

Write the net ionic equations for the following chemical reactions:

1. ZnCO3(s) + H2SO4(aq) 🡪 ZnSO4(aq) + H2O(*l*) + CO2(g)

**I.E.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**N.I.E.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

1. Zn(s) + 2AgNO3(aq) 🡪 Zn(NO3)2(aq) + 2Ag(s)

**I.E.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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1. SO3(g) + H2O(*l*) 🡪 H2SO4(aq)

**I.E.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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1. H3PO4(aq) + Ca(OH)2(aq) 🡪 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**I.E.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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1. Barium hydroxide solution reacts with hydrochloric acid to form barium chloride solution and water.

**B.C.E. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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1. Barium nitrate solution reacts with potassium carbonate solution to form a white precipitate.

**B.C.E. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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1. Solid barium oxide reacts with a solution of perchloric acid.

**B.C.E. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**I.E.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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1. Sodium phosphate solution reacts with silver nitrate solution to form a beige precipitate.

**B.C.E. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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1. Ammonium sulfate solution reacts with barium hydroxide solution.

**B.C.E. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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1. Magnesium metal reacts with copper(II) chloride solution to form copper metal and a colourless solution.

**B.C.E. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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**Answers to Practice Problems**

1. ZnCO3(s) + 2H+(aq) 🡪 Zn2+(aq) + H2O(*l*) + CO2(g)
2. Zn(s) + 2Ag+(aq) 🡪 Zn2+(aq) + 2Ag(s)
3. SO3(g) + H2O(*l*) 🡪 2H+(aq) + SO42-(aq)
4. 2H3PO4(aq) + 3Ca(OH)2(aq) 🡪 Ca3(PO4)2(s) + 6H2O(*l*)

2H3PO4(aq) + 3Ca2+(aq) + 6OH-(aq) 🡪 Ca3(PO4)2(s) + 6H2O(*l*)

1. Ba(OH)2(aq) + 2HCl(aq) 🡪 BaCl2(aq) + 2H2O(*l*)

H+(aq) + OH-(aq) 🡪 H2O(*l*)

1. Ba(NO3)2(aq) + K2CO3(aq) 🡪 BaCO3(s) + 2KNO3(aq)

Ba2+(aq) + CO32-(aq) 🡪 BaCO3(s)

1. BaO(s) + 2HClO4(aq) 🡪 Ba(ClO4)2(aq) + H2O(*l*)

BaO(s) + 2H+(aq) 🡪 Ba2+(aq) + H2O(*l*)

1. Na3PO4(aq) + 3AgNO3(aq) 🡪 Ag3PO4(s) + 3NaNO3(aq)

PO43-(aq) + 3Ag+(aq) 🡪 Ag3PO4(s)

1. (NH4)2SO4(aq) + Ba(OH)2(aq) 🡪 BaSO4(s) + 2NH3(g) + 2H2O(*l*)

2NH4+(aq) + SO42-(aq) + Ba2+(aq) + 2OH-(aq)🡪 BaSO4(s) + 2NH3(g) + 2H2O(*l*)

1. Mg(s) + CuCl2(aq) 🡪 Cu(s) + MgCl2(aq)

Mg(s) + Cu2+(aq) 🡪 Cu(s) + Mg2+(aq)