

Check Your Solution

All the chemical formulas are correct, and the chemical equation is balanced. The products are correctly formed by switching the ions in the reactants. The precipitate is correctly identified based on the solubility guidelines.

12. Practice Problem (page 175)

Determine the products that form in the double displacement reaction and identify the precipitate. Write a balanced chemical equation.

Barium nitrate and sodium carbonate

What Is Required?

Determine the products that form when barium nitrate and sodium carbonate react, and write a balanced chemical equation that shows which product is the precipitate.

What Is Given?

Reactants: barium nitrate and sodium carbonate

Type of reaction: double displacement

Plan Your Strategy

Identify the ions that make up each reactant.

Switch the pairs of ions to determine products.

Use the solubility guidelines to determine the precipitate.

Write a word equation for the reaction.

Write a balanced chemical equation for the reaction.

Act on Your Strategy

Barium nitrate: barium ions, Ba^{2+} , and nitrate ions, NO_3^-

Sodium carbonate: sodium ions, Na^+ , and carbonate ions, CO_3^{2-}

Products: sodium nitrate is soluble and barium carbonate, a compound of low solubility, is the precipitate

Word equation:

barium nitrate + sodium carbonate \rightarrow sodium nitrate + barium carbonate

Skeleton equation:

$\text{Ba}(\text{NO}_3)_2(\text{aq}) + \text{Na}_2\text{CO}_3(\text{aq}) \rightarrow \text{NaNO}_3(\text{aq}) + \text{BaCO}_3(\text{s})$

Balanced chemical equation:

$\text{Ba}(\text{NO}_3)_2(\text{aq}) + \text{Na}_2\text{CO}_3(\text{aq}) \rightarrow 2\text{NaNO}_3(\text{aq}) + \text{BaCO}_3(\text{s})$

Check Your Solution

All the chemical formulas are correct, and the chemical equation is balanced. The products are correctly formed by switching the ions in the reactants. The precipitate is correctly identified based on the solubility guidelines.

14. Practice Problem (page 175)

Determine the products that form in the double displacement reaction and identify the precipitate. Write a balanced chemical equation.

Rubidium sulfide and copper(II) iodide

What Is Required?

Determine the products that form when rubidium sulfide and copper(II) iodide react, and write a balanced chemical equation that shows which product is the precipitate.

What Is Given?

Reactants: rubidium sulfide and copper(II) iodide

Type of reaction: double displacement

Plan Your Strategy

Identify the ions that make up each reactant.

Switch the pairs of ions to determine products.

Use the solubility guidelines to determine the precipitate.

Write a word equation for the reaction.

Write a balanced chemical equation for the reaction.

Act on Your Strategy

Rubidium sulfide: rubidium ions, Rb^+ , and sulfide ions, S^{2-}

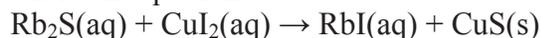
Copper(II) iodide: copper(II) ions, Cu^{2+} , and iodide ions, I^-

Products: rubidium iodide is soluble and copper(II) sulfide, a compound of low solubility, is the precipitate

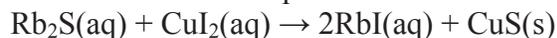
Word equation:

rubidium sulfide + copper(II) iodide \rightarrow rubidium iodide + copper(II) sulfide

Skeleton equation:



Balanced chemical equation:

**Check Your Solution**

All the chemical formulas are correct, and the chemical equation is balanced.

The products are correctly formed by switching the ions in the reactants. The precipitate is correctly identified based on the solubility guidelines.

16. Practice Problem (page 175)

Determine the products that form in the double displacement reaction and identify the precipitate. Write a balanced chemical equation.

Lithium hydroxide and magnesium chloride

What Is Required?

Determine the products that form when lithium hydroxide and magnesium chloride react, and write a balanced chemical equation that shows which product is the precipitate.

What Is Given?

Reactants: lithium hydroxide and magnesium chloride

Type of reaction: double displacement

Plan Your Strategy

Identify the ions that make up each reactant.

Switch the pairs of ions to determine products.

Use the solubility guidelines to determine the precipitate.

Write a word equation for the reaction.

Write a balanced chemical equation for the reaction.

Act on Your Strategy

Lithium hydroxide: lithium ions, Li^+ , and hydroxide ions, OH^-

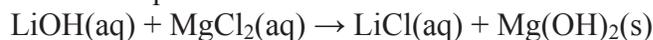
Magnesium chloride: magnesium ions, Mg^{2+} , and chloride ions, Cl^-

Products: lithium chloride is soluble and magnesium hydroxide is the precipitate

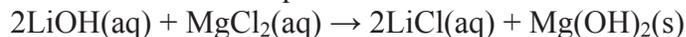
Word equation:

lithium hydroxide + magnesium chloride \rightarrow lithium chloride + magnesium hydroxide

Skeleton equation:



Balanced chemical equation:

**Check Your Solution**

All the chemical formulas are correct, and the chemical equation is balanced. The products are correctly formed by switching the ions in the reactants. The precipitate is correctly identified based on the solubility guidelines.

18. Practice Problem (page 175)

Determine the products that form in the double displacement reaction and identify the precipitate. Write a balanced chemical equation.

Lithium phosphate and magnesium chloride

What Is Required?

Determine the products that form when lithium phosphate and magnesium chloride react, and write a balanced chemical equation that shows which product is the precipitate.

What Is Given?

Reactants: lithium phosphate and magnesium chloride

Type of reaction: double displacement

Plan Your Strategy

Identify the ions that make up each reactant.

Switch the pairs of ions to determine products.

Use the solubility guidelines to determine the precipitate.

Write a word equation for the reaction.

Write a balanced chemical equation for the reaction.

Act on Your Strategy

Lithium phosphate: lithium ions, Li^+ , and phosphate ions, PO_4^{3-}

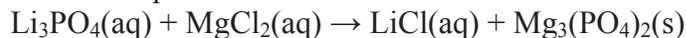
Magnesium chloride: magnesium ions, Mg^{2+} , and chloride ions, Cl^-

Products: lithium chloride is soluble and magnesium phosphate, a compound of low solubility, is the precipitate

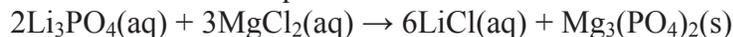
Word equation:

lithium phosphate + magnesium chloride \rightarrow lithium chloride + magnesium phosphate

Skeleton equation:



Balanced chemical equation:

**Check Your Solution**

All the chemical formulas are correct, and the chemical equation is balanced. The products are correctly formed by switching the ions in the reactants. The precipitate is correctly identified based on the solubility guidelines.

20. Practice Problem (page 175)

Determine the products that form in the double displacement reaction and identify the precipitate. Write a balanced chemical equation.

Silver nitrate and magnesium chloride

What Is Required?

Determine the products that form when silver nitrate and magnesium chloride react, and write a balanced chemical equation that shows which product is the precipitate.

What Is Given?

Reactants: silver nitrate and magnesium chloride

Type of reaction: double displacement

Plan Your Strategy

Identify the ions that make up each reactant.

Switch the pairs of ions to determine products.

Use the solubility guidelines to determine the precipitate.

Write a word equation for the reaction.

Write a balanced chemical equation for the reaction.

Act on Your Strategy

Silver nitrate: silver ions, Ag^+ , and nitrate ions, NO_3^-

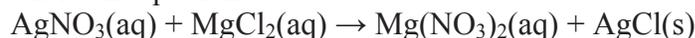
Magnesium chloride: magnesium ions, Mg^{2+} , and chloride ions, Cl^-

Products: magnesium nitrate is soluble and silver chloride, a compound of low solubility, is the precipitate

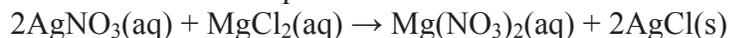
Word equation:

silver nitrate + magnesium chloride \rightarrow magnesium nitrate + silver chloride

Skeleton equation:



Balanced chemical equation:

**Check Your Solution**

All the chemical formulas are correct, and the chemical equation is balanced. The products are correctly formed by switching the ions in the reactants. The precipitate is correctly identified based on the solubility guidelines.