

Balancing Ionic Compounds Worksheet

Balance the following reactions.

- $\text{Zn (s)} + \underline{\hspace{1cm}} \text{AgNO}_3 \text{ (aq)} \rightarrow \text{Zn(NO}_3)_2 \text{ (aq)} + \underline{\hspace{1cm}} \text{Ag (s)}$
- $\text{Ba(HCO}_3)_2 \text{ (s)} \rightarrow \text{BaCO}_3 \text{ (s)} + \text{H}_2\text{O (g)} + \text{CO}_2 \text{ (g)}$
- $\text{BaCl}_2 \text{ (aq)} + \text{Na}_2\text{SO}_4 \text{ (aq)} \rightarrow \underline{\hspace{1cm}} \text{NaCl (aq)} + \text{BaSO}_4 \text{ (s)}$
- $\underline{\hspace{1cm}} \text{Mg(OH)}_2 \text{ (aq)} + \underline{\hspace{1cm}} \text{H}_3\text{PO}_4 \text{ (aq)} \rightarrow \underline{\hspace{1cm}} \text{H}_2\text{O (l)} + \text{Mg}_3(\text{PO}_4)_2 \text{ (aq)}$
- $\underline{\hspace{1cm}} \text{KOH (aq)} + \text{H}_2\text{CO}_3 \text{ (aq)} \rightarrow \underline{\hspace{1cm}} \text{H}_2\text{O (l)} + \text{K}_2\text{CO}_3 \text{ (aq)}$
- $\text{Ni (s)} + \text{Pb(NO}_3)_2 \text{ (aq)} \rightarrow \text{Ni(NO}_3)_2 \text{ (aq)} + \text{Pb (s)}$
- $\underline{\hspace{1cm}} \text{Na}_3\text{PO}_4 \text{ (aq)} + \underline{\hspace{1cm}} \text{CaCl}_2 \text{ (aq)} \rightarrow \underline{\hspace{1cm}} \text{NaCl (aq)} + \text{Ca}_3(\text{PO}_4)_2 \text{ (s)}$
- $\text{K}_2\text{CO}_3 \text{ (aq)} + \underline{\hspace{1cm}} \text{AgNO}_3 \text{ (aq)} \rightarrow \underline{\hspace{1cm}} \text{KNO}_3 \text{ (aq)} + \text{Ag}_2\text{CO}_3 \text{ (s)}$
- $\underline{\hspace{1cm}} \text{NaOH (aq)} + \text{CuSO}_4 \text{ (aq)} \rightarrow \text{Na}_2\text{SO}_4 \text{ (aq)} + \text{Cu(OH)}_2 \text{ (s)}$
- $\underline{\hspace{1cm}} \text{HCl (aq)} + \text{Al(OH)}_3 \text{ (s)} \rightarrow \underline{\hspace{1cm}} \text{H}_2\text{O (l)} + \text{AlCl}_3 \text{ (aq)}$
- $\underline{\hspace{1cm}} \text{HF (aq)} + \text{Ba(NO}_3)_2 \text{ (aq)} \rightarrow \underline{\hspace{1cm}} \text{HNO}_3 \text{ (aq)} + \text{BaF}_2 \text{ (s)}$
- $\text{H}_2\text{SO}_4 \text{ (aq)} + \underline{\hspace{1cm}} \text{NaOH (aq)} \rightarrow \text{Na}_2\text{SO}_4 \text{ (aq)} + \underline{\hspace{1cm}} \text{H}_2\text{O (l)}$
- $\underline{\hspace{1cm}} \text{Zn (s)} + \text{Sn(NO}_3)_4 \text{ (aq)} \rightarrow \underline{\hspace{1cm}} \text{Zn(NO}_3)_2 \text{ (aq)} + \text{Sn (s)}$
- $\underline{\hspace{1cm}} \text{Fe (s)} + \underline{\hspace{1cm}} \text{NiI}_3 \text{ (aq)} \rightarrow \underline{\hspace{1cm}} \text{FeI}_2 \text{ (aq)} + \underline{\hspace{1cm}} \text{Ni (s)}$
- $\text{Fe(NO}_3)_2 \text{ (aq)} + \text{Na}_2\text{S (aq)} \rightarrow \text{FeS (s)} + \underline{\hspace{1cm}} \text{NaNO}_3 \text{ (aq)}$

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Answers

- $\text{Zn (s)} + \underline{2} \text{ AgNO}_3 \text{ (aq)} \rightarrow \text{Zn(NO}_3)_2 \text{ (aq)} + \underline{2} \text{ Ag (s)}$
- $\text{Ba(HCO}_3)_2 \text{ (s)} \rightarrow \text{BaCO}_3 \text{ (s)} + \text{H}_2\text{O (g)} + \text{CO}_2 \text{ (g)}$ (already balanced)
- $\text{BaCl}_2 \text{ (aq)} + \text{Na}_2\text{SO}_4 \text{ (aq)} \rightarrow \underline{2} \text{ NaCl (aq)} + \text{BaSO}_4 \text{ (s)}$
- $\underline{3} \text{ Mg(OH)}_2 \text{ (aq)} + \underline{2} \text{ H}_3\text{PO}_4 \text{ (aq)} \rightarrow \underline{6} \text{ H}_2\text{O (l)} + \text{Mg}_3(\text{PO}_4)_2 \text{ (aq)}$
- $\underline{2} \text{ KOH (aq)} + \text{H}_2\text{CO}_3 \text{ (aq)} \rightarrow \underline{2} \text{ H}_2\text{O (l)} + \text{K}_2\text{CO}_3 \text{ (aq)}$
- $\text{Ni (s)} + \text{Pb(NO}_3)_2 \text{ (aq)} \rightarrow \text{Ni(NO}_3)_2 \text{ (aq)} + \text{Pb (s)}$ (already balanced)
- $\underline{2} \text{ Na}_3\text{PO}_4 \text{ (aq)} + \underline{3} \text{ CaCl}_2 \text{ (aq)} \rightarrow \underline{6} \text{ NaCl (aq)} + \text{Ca}_3(\text{PO}_4)_2 \text{ (s)}$
- $\text{K}_2\text{CO}_3 \text{ (aq)} + \underline{2} \text{ AgNO}_3 \text{ (aq)} \rightarrow \underline{2} \text{ KNO}_3 \text{ (aq)} + \text{Ag}_2\text{CO}_3 \text{ (s)}$
- $\underline{2} \text{ NaOH (aq)} + \text{CuSO}_4 \text{ (aq)} \rightarrow \text{Na}_2\text{SO}_4 \text{ (aq)} + \text{Cu(OH)}_2 \text{ (s)}$
- $\underline{3} \text{ HCl (aq)} + \text{Al(OH)}_3 \text{ (s)} \rightarrow \underline{3} \text{ H}_2\text{O (l)} + \text{AlCl}_3 \text{ (aq)}$
- $\underline{2} \text{ HF (aq)} + \text{Ba(NO}_3)_2 \text{ (aq)} \rightarrow \underline{2} \text{ HNO}_3 \text{ (aq)} + \text{BaF}_2 \text{ (s)}$
- $\text{H}_2\text{SO}_4 \text{ (aq)} + \underline{2} \text{ NaOH (aq)} \rightarrow \text{Na}_2\text{SO}_4 \text{ (aq)} + \underline{2} \text{ H}_2\text{O (l)}$
- $\underline{2} \text{ Zn (s)} + \text{Sn(NO}_3)_4 \text{ (aq)} \rightarrow \underline{2} \text{ Zn(NO}_3)_2 \text{ (aq)} + \text{Sn (s)}$
- $\underline{3} \text{ Fe (s)} + \underline{2} \text{ NiI}_3 \text{ (aq)} \rightarrow \underline{3} \text{ FeI}_2 \text{ (aq)} + \underline{2} \text{ Ni (s)}$
- $\text{Fe(NO}_3)_2 \text{ (aq)} + \text{Na}_2\text{S (aq)} \rightarrow \text{FeS (s)} + \underline{2} \text{ NaNO}_3 \text{ (aq)}$