

Writing and Balancing Equations Worksheet

STO.1	Balance a chemical equation.
STO.2	Identify the parts of a chemical equation.
RXN.1	Describe a chemical reaction using words and symbolic equations.

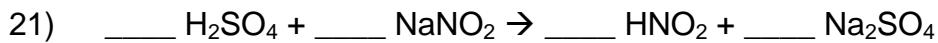
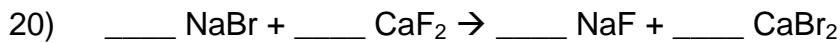
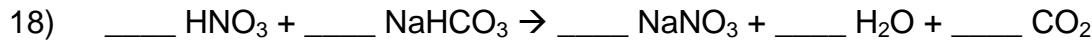
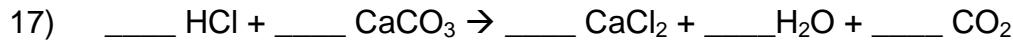
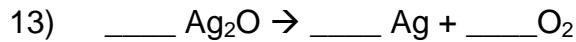
For each of the following problems, write complete chemical equations to describe the chemical process taking place. Balance the equations.

- 1) When lithium hydroxide pellets are added to a solution of sulfuric acid (H_2SO_4), lithium sulfate and water are formed.
- 2) Magnesium reacts with sodium fluoride to produce magnesium fluoride and elemental sodium.
- 3) If a copper coil is placed into a solution of silver nitrate, silver crystals form and copper (I) nitrate is generated.
- 4) When crystalline $\text{C}_6\text{H}_{12}\text{O}_6$ is burned in oxygen, carbon dioxide and water vapor are formed.
- 5) Calcium carbonate combines with hydrochloric acid (HCl) to produce calcium chloride, water and carbon dioxide gas.

Balance the equations below:

- 1) $\underline{\quad}\text{N}_2 + \underline{\quad}\text{H}_2 \rightarrow \underline{\quad}\text{NH}_3$
- 2) $\underline{\quad}\text{KClO}_3 \rightarrow \underline{\quad}\text{KCl} + \underline{\quad}\text{O}_2$
- 3) $\underline{\quad}\text{NaCl} + \underline{\quad}\text{F}_2 \rightarrow \underline{\quad}\text{NaF} + \underline{\quad}\text{Cl}_2$
- 4) $\underline{\quad}\text{H}_2 + \underline{\quad}\text{O}_2 \rightarrow \underline{\quad}\text{H}_2\text{O}$
- 5) $\underline{\quad}\text{Pb(OH)}_2 + \underline{\quad}\text{HCl} \rightarrow \underline{\quad}\text{H}_2\text{O} + \underline{\quad}\text{PbCl}_2$
- 6) $\underline{\quad}\text{AlBr}_3 + \underline{\quad}\text{K}_2\text{SO}_4 \rightarrow \underline{\quad}\text{KBr} + \underline{\quad}\text{Al}_2(\text{SO}_4)_3$
- 7) $\underline{\quad}\text{CH}_4 + \underline{\quad}\text{O}_2 \rightarrow \underline{\quad}\text{CO}_2 + \underline{\quad}\text{H}_2\text{O}$
- 8) $\underline{\quad}\text{C}_3\text{H}_8 + \underline{\quad}\text{O}_2 \rightarrow \underline{\quad}\text{CO}_2 + \underline{\quad}\text{H}_2\text{O}$
- 9) $\underline{\quad}\text{C}_8\text{H}_{18} + \underline{\quad}\text{O}_2 \rightarrow \underline{\quad}\text{CO}_2 + \underline{\quad}\text{H}_2\text{O}$
- 10) $\underline{\quad}\text{FeCl}_3 + \underline{\quad}\text{NaOH} \rightarrow \underline{\quad}\text{Fe(OH)}_3 + \underline{\quad}\text{NaCl}$
- 11) $\underline{\quad}\text{P} + \underline{\quad}\text{O}_2 \rightarrow \underline{\quad}\text{P}_2\text{O}_5$

Writing and Balancing Equations Worksheet



Word Equations

Write the word equations below as chemical equations and balance:

- 1) Zinc and lead (II) nitrate react to form zinc nitrate and lead.
- 2) Aluminum bromide and chlorine gas react to form aluminum chloride and bromine gas.
- 3) Sodium phosphate and calcium chloride react to form calcium phosphate and sodium chloride.
- 4) Potassium metal and chlorine gas combine to form potassium chloride.
- 5) Aluminum and hydrochloric acid react to form aluminum chloride and hydrogen gas.
- 6) Calcium hydroxide and phosphoric acid react to form calcium phosphate and water.
- 7) Copper and sulfuric acid react to form copper (II) sulfate and water and sulfur dioxide.
- 8) Hydrogen gas and nitrogen monoxide react to form water and nitrogen gas.

Word Equations – Answer Key

- 1) Zinc and lead (II) nitrate react to form zinc nitrate and lead.



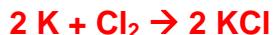
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- 2) Aluminum bromide and chlorine gas react to form aluminum chloride and bromine gas.



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- 5) Aluminum and hydrochloric acid react to form aluminum chloride and hydrogen gas.



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- 6) Calcium hydroxide and phosphoric acid react to form calcium phosphate and water.



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- 7) Copper and sulfuric acid react to form copper (II) sulfate and water and sulfur dioxide.



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- 8) Hydrogen gas and nitrogen monoxide react to form water and nitrogen gas.



Balancing Chemical Equations – Answer Key

Balance the equations below:

- 1) $1 \text{ N}_2 + 3 \text{ H}_2 \rightarrow 2 \text{ NH}_3$
- 2) $2 \text{ KClO}_3 \rightarrow 2 \text{ KCl} + 3 \text{ O}_2$
- 3) $2 \text{ NaCl} + 1 \text{ F}_2 \rightarrow 2 \text{ NaF} + 1 \text{ Cl}_2$
- 4) $2 \text{ H}_2 + 1 \text{ O}_2 \rightarrow 2 \text{ H}_2\text{O}$
- 5) $1 \text{ Pb(OH)}_2 + 2 \text{ HCl} \rightarrow 2 \text{ H}_2\text{O} + 1 \text{ PbCl}_2$
- 6) $2 \text{ AlBr}_3 + 3 \text{ K}_2\text{SO}_4 \rightarrow 6 \text{ KBr} + 1 \text{ Al}_2(\text{SO}_4)_3$
- 7) $1 \text{ CH}_4 + 2 \text{ O}_2 \rightarrow 1 \text{ CO}_2 + 2 \text{ H}_2\text{O}$
- 8) $1 \text{ C}_3\text{H}_8 + 5 \text{ O}_2 \rightarrow 3 \text{ CO}_2 + 4 \text{ H}_2\text{O}$
- 9) $2 \text{ C}_8\text{H}_{18} + 25 \text{ O}_2 \rightarrow 16 \text{ CO}_2 + 18 \text{ H}_2\text{O}$
- 10) $1 \text{ FeCl}_3 + 3 \text{ NaOH} \rightarrow 1 \text{ Fe(OH)}_3 + 3 \text{ NaCl}$
- 11) $4 \text{ P} + 5 \text{ O}_2 \rightarrow 2 \text{ P}_2\text{O}_5$
- 12) $2 \text{ Na} + 2 \text{ H}_2\text{O} \rightarrow 2 \text{ NaOH} + 1 \text{ H}_2$
- 13) $2 \text{ Ag}_2\text{O} \rightarrow 4 \text{ Ag} + 1 \text{ O}_2$
- 14) $1 \text{ S}_8 + 12 \text{ O}_2 \rightarrow 8 \text{ SO}_3$
- 15) $6 \text{ CO}_2 + 6 \text{ H}_2\text{O} \rightarrow 1 \text{ C}_6\text{H}_{12}\text{O}_6 + 6 \text{ O}_2$
- 16) $1 \text{ K} + 1 \text{ MgBr} \rightarrow 1 \text{ KBr} + 1 \text{ Mg}$
- 17) $2 \text{ HCl} + 1 \text{ CaCO}_3 \rightarrow 1 \text{ CaCl}_2 + 1 \text{ H}_2\text{O} + 1 \text{ CO}_2$
- 18) $1 \text{ HNO}_3 + 1 \text{ NaHCO}_3 \rightarrow 1 \text{ NaNO}_3 + 1 \text{ H}_2\text{O} + 1 \text{ CO}_2$
- 19) $2 \text{ H}_2\text{O} + 1 \text{ O}_2 \rightarrow 2 \text{ H}_2\text{O}_2$
- 20) $2 \text{ NaBr} + 1 \text{ CaF}_2 \rightarrow 2 \text{ NaF} + 1 \text{ CaBr}_2$
- 21) $1 \text{ H}_2\text{SO}_4 + 2 \text{ NaNO}_2 \rightarrow 2 \text{ HNO}_2 + 1 \text{ Na}_2\text{SO}_4$