

Ch 8

Balancing Chemical Equations*Balance the equations below:*

- 1) _____ N_2 + _____ H_2 \rightarrow _____ NH_3
- 2) _____ KClO_3 \rightarrow _____ KCl + _____ O_2
- 3) _____ NaCl + _____ F_2 \rightarrow _____ NaF + _____ Cl_2
- 4) _____ H_2 + _____ O_2 \rightarrow _____ H_2O
- 5) _____ $\text{Pb}(\text{OH})_2$ + _____ HCl \rightarrow _____ H_2O + _____ PbCl_2
- 6) _____ AlBr_3 + _____ K_2SO_4 \rightarrow _____ KBr + _____ $\text{Al}_2(\text{SO}_4)_3$
- 7) _____ CH_4 + _____ O_2 \rightarrow _____ CO_2 + _____ H_2O
- 8) _____ C_3H_8 + _____ O_2 \rightarrow _____ CO_2 + _____ H_2O
- 9) _____ C_8H_{18} + _____ O_2 \rightarrow _____ CO_2 + _____ H_2O
- 10) _____ FeCl_3 + _____ NaOH \rightarrow _____ $\text{Fe}(\text{OH})_3$ + _____ NaCl
- 11) _____ P + _____ O_2 \rightarrow _____ P_2O_5
- 12) _____ Na + _____ H_2O \rightarrow _____ NaOH + _____ H_2
- 13) _____ Ag_2O \rightarrow _____ Ag + _____ O_2
- 14) _____ S_8 + _____ O_2 \rightarrow _____ SO_3
- 15) _____ CO_2 + _____ H_2O \rightarrow _____ $\text{C}_6\text{H}_{12}\text{O}_6$ + _____ O_2
- 16) _____ K + _____ MgBr \rightarrow _____ KBr + _____ Mg
- 17) _____ HCl + _____ CaCO_3 \rightarrow _____ CaCl_2 + _____ H_2O + _____ CO_2
- 18) _____ HNO_3 + _____ NaHCO_3 \rightarrow _____ NaNO_3 + _____ H_2O + _____ CO_2
- 19) _____ H_2O + _____ O_2 \rightarrow _____ H_2O_2
- 20) _____ NaBr + _____ CaF_2 \rightarrow _____ NaF + _____ CaBr_2
- 21) _____ H_2SO_4 + _____ NaNO_2 \rightarrow _____ HNO_2 + _____ Na_2SO_4

Section 2: Practicing equation balancing

Before you can write a balanced equation for a problem which asks you to predict the products of a reaction, you need to know how to balance an equation. Because some of you may not fully remember how to balance an equation, here are some practice problems:

- 1) $__ \text{C}_6\text{H}_6 + __ \text{O}_2 \rightarrow __ \text{H}_2\text{O} + __ \text{CO}_2$
- 2) $__ \text{NaI} + __ \text{Pb}(\text{SO}_4)_2 \rightarrow __ \text{PbI}_4 + __ \text{Na}_2\text{SO}_4$
- 3) $__ \text{NH}_3 + __ \text{O}_2 \rightarrow __ \text{NO} + __ \text{H}_2\text{O}$
- 4) $__ \text{Fe}(\text{OH})_3 \rightarrow __ \text{Fe}_2\text{O}_3 + __ \text{H}_2\text{O}$
- 5) $__ \text{HNO}_3 + __ \text{Mg}(\text{OH})_2 \rightarrow __ \text{H}_2\text{O} + __ \text{Mg}(\text{NO}_3)_2$
- 6) $__ \text{H}_3\text{PO}_4 + __ \text{NaBr} \rightarrow __ \text{HBr} + __ \text{Na}_3\text{PO}_4$
- 7) $__ \text{C} + __ \text{H}_2 \rightarrow __ \text{C}_3\text{H}_8$
- 8) $__ \text{CaO} + __ \text{MnI}_4 \rightarrow __ \text{MnO}_2 + __ \text{CaI}_2$
- 9) $__ \text{Fe}_2\text{O}_3 + __ \text{H}_2\text{O} \rightarrow __ \text{Fe}(\text{OH})_3$
- 10) $__ \text{C}_2\text{H}_2 + __ \text{H}_2 \rightarrow __ \text{C}_2\text{H}_6$
- 11) $__ \text{VF}_5 + __ \text{HI} \rightarrow __ \text{V}_2\text{I}_{10} + __ \text{HF}$
- 12) $__ \text{OsO}_4 + __ \text{PtCl}_4 \rightarrow __ \text{PtO}_2 + __ \text{OsCl}_8$
- 13) $__ \text{CF}_4 + __ \text{Br}_2 \rightarrow __ \text{CBr}_4 + __ \text{F}_2$
- 14) $__ \text{Hg}_2\text{I}_2 + __ \text{O}_2 \rightarrow __ \text{Hg}_2\text{O} + __ \text{I}_2$
- 15) $__ \text{Y}(\text{NO}_3)_2 + __ \text{GaPO}_4 \rightarrow __ \text{YPO}_4 + __ \text{Ga}(\text{NO}_3)_2$

Chemical Word Equations#1

Write a balanced chemical equation in the box below the following word equations:

1. potassium chloride + silver nitrate -----> potassium nitrate + silver chloride

2. aluminum hydroxide + sodium nitrate -----> aluminum nitrate + sodium hydroxide

3. iron metal + copper II sulfate -----> iron II sulfate + copper metal

4. aluminum metal + cupric chloride -----> aluminum chloride + copper metal

5. sodium chlorate -----> sodium chloride + oxygen gas

6. calcium carbonate -----> calcium oxide + carbon dioxide gas

7. zinc metal + oxygen gas -----> zinc oxide

8. chlorine gas + sodium metal -----> sodium chloride

9. aluminum sulfate + barium chloride -----> aluminum chloride + barium sulfate

10. sodium hydrogen carbonate -----> sodium carbonate + carbon dioxide gas + water

Chemical Word Equations#2

Write a balanced chemical equation in the box below the following word equations:

1. aluminum permanganate + ammonium acetate -----> ammonium permanganate + aluminum acetate

2. sodium + water -----> sodium hydroxide + hydrogen

3. nitric acid + magnesium carbonate -----> magnesium nitrate + carbon dioxide + water

4. potassium oxalate + tin IV phosphate -----> potassium phosphate + tin IV oxalate

5. barium chloride + fluorine -----> barium fluoride + chlorine

6. zinc + phosphoric acid -----> zinc phosphate + hydrogen

7. lead IV sulfide + oxygen -----> lead IV oxide + sulfur dioxide

8. ferric iodide + cuprous hydrogen carbonate -----> ferric hydrogen carbonate + cuprous iodide

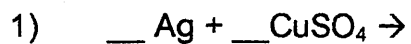
9. ammonium phosphate + calcium hydroxide -----> calcium phosphate + ammonia + water

10. chromium III bromide + chlorine -----> chromium III chloride + bromine

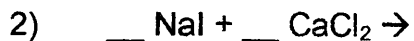
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Section 3: Predicting the products of chemical reactions

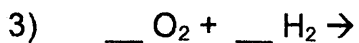
Predict the products of the following reactions:



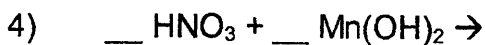
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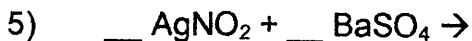
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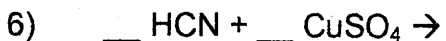
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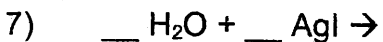
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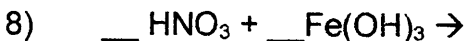
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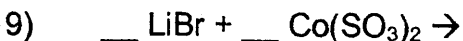
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