

Worksheet - Balancing Chemical Equations

This worksheet requires prior knowledge of [nomenclature/formula](#) writing skills of a variety of compounds. If you haven't already done so, or need more practice, return to this concept development topic. Part B of this assignment also incorporates [types of chemical reactions](#) studied in this unit. If you need to become more familiar with the various types of chemical reactions, don't hesitate to review this concept development topic.

PART A - Write the proper formulas for the equations below and balance them by placing the correct whole number coefficients in front of each formula.

1. sodium + oxygen \rightarrow sodium oxide
2. ammonium + nitrite \rightarrow nitrogen + water
3. sodium + oxygen \rightarrow sodium peroxide
4. potassium chlorate \rightarrow potassium chloride + oxygen
5. magnesium + oxygen \rightarrow magnesium oxide
6. magnesium oxide + water \rightarrow magnesium hydroxide
7. aluminum + sulphuric acid \rightarrow aluminum sulphate + hydrogen
8. copper + nitric acid \rightarrow copper (II) nitrate + nitrogen monoxide + water
9. sodium hydroxide + hydrochloric acid \rightarrow aluminum chloride + hydrogen
10. chlorine + carbon tetrahydride \rightarrow hydrogen chloride + carbon tetrachloride

PART B - Balance the following equations by placing correct whole number coefficients in the blanks. Also identify what type of chemical reaction is occurring.

1. ____ $\text{Ca(OH)}_2(\text{s})$ + ____ $\text{HCl}(\text{aq}) \rightarrow$ ____ $\text{CaCl}_2(\text{aq})$ + ____ $\text{H}_2\text{O}(\text{l})$
2. ____ $\text{FeCl}_3(\text{aq})$ + ____ $(\text{NH}_4)_2\text{S}(\text{aq}) \rightarrow$ ____ $\text{Fe}_2\text{S}_3(\text{s})$ + ____ $\text{NH}_4\text{Cl}(\text{aq})$
3. ____ $\text{KNO}_3(\text{s}) \rightarrow$ ____ $\text{KNO}_2(\text{s})$ + ____ $\text{O}_2(\text{g})$
4. ____ $\text{Ag}_2\text{O}(\text{s}) \rightarrow$ ____ $\text{Ag}(\text{s})$ + ____ $\text{O}_2(\text{g})$
5. ____ $\text{C}_4\text{H}_{10}(\text{g})$ + ____ $\text{O}_2(\text{g}) \rightarrow$ ____ $\text{CO}_2(\text{g})$ + ____ $\text{H}_2\text{O}(\text{g})$
6. ____ $\text{Br}_2(\text{aq})$ + ____ $\text{KI}(\text{aq}) \rightarrow$ ____ $\text{I}_2(\text{aq})$ + ____ $\text{KBr}(\text{aq})$
7. ____ $\text{AsCl}_3(\text{aq})$ + ____ $\text{H}_2\text{S}(\text{aq}) \rightarrow$ ____ $\text{As}_2\text{S}_3(\text{s})$ + ____ $\text{H}_2\text{O}(\text{g})$
8. ____ $\text{C}_5\text{H}_{12}\text{O}(\text{l})$ + ____ $\text{O}_2(\text{g}) \rightarrow$ ____ $\text{CO}_2(\text{g})$ + ____ $\text{H}_2\text{O}(\text{g})$
9. ____ $\text{Al}(\text{s})$ + ____ $\text{H}_2\text{SO}_4(\text{aq}) \rightarrow$ ____ $\text{Al}_2(\text{SO}_4)_3(\text{aq})$ + ____ $\text{H}_2(\text{g})$
10. ____ $\text{Fe}(\text{s})$ + ____ $\text{Cl}_2(\text{g}) \rightarrow$ ____ $\text{FeCl}_3(\text{s})$

Click here to return to the Main [Chemical Reactions Concept Page](#).