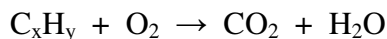


Combustion Reactions

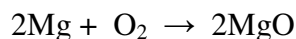
Chem Worksheet 10-5

Name _____

A **combustion** reaction is one in which a fuel combines with oxygen. The most common fuels are **hydrocarbons**, compounds made of hydrogen and carbon. Another common category of fuels are **alcohols**, molecular compounds that contain the $-OH$ group. When hydrocarbons or alcohols undergo combustion they both form the products carbon dioxide, CO_2 and water, H_2O . The general form of these reactions is:



When other fuels burn in oxygen these reactions are also classified as combustion. For example, magnesium metal burns in oxygen to form magnesium oxide. Notice that this reaction could also be classified as a **synthesis** reaction.



Write the chemical equations for each equation described below. Include physical states. Balance the equations.

1. $CH_4 (g) + O_2 (g) \rightarrow \text{_____} + \text{_____}$
2. $C_2H_6 (g) + O_2 (g) \rightarrow \text{_____} + \text{_____}$
3. $CH_3OH (l) + O_2 (g) \rightarrow \text{_____} + \text{_____}$
4. Combustion of liquid propane (C_3H_8)
5. Combustion of liquid octane (C_8H_{18})
6. Combustion of liquid pentanol ($C_5H_{11}OH$)
7. Combustion of carbon.
8. Combustion of iron.
9. Combustion of sulfur.
10. Combustion of solid sucrose ($C_{12}H_{22}O_{11}$).