Chemistry 11 – Balancing Chemical Equations

1. Balance the following equations

a.
$$NH_3 + O_2 \rightarrow NO + H_2O$$

b.
$$(NH_4)_2C_2O_4 + AlCl_3 \rightarrow Al_2(C_2O_4)_3 + NH_4Cl$$

c.
$$C_{13}H_{28} + O_2 \rightarrow CO_2 + H_2C$$

d. Fe +
$$H_2SO_4 \rightarrow Fe_2(SO_4)_3 + H_2$$

e.
$$P_4$$
 + Cl_2 \rightarrow PCl_5

f.
$$Na_2Cr_2O_7 + HCl \rightarrow NaCl + CrCl_3 + H_2O + Cl_2$$

g.
$$H_3PO_4$$
 + $Ca(OH)_2$ \rightarrow $Ca_3(PO_4)_2$ + H_2O

h.
$$Ba(CH_3COO)_2 \rightarrow Ba + C + H_2 + O_2$$

i.
$$C_6H_{13}OH + O_2 \rightarrow CO_2 + H_2O$$

j.
$$MgSO_4$$
· $GH_2O \rightarrow MgSO_4 + H_2O$

2. Write a **balanced chemical equation** for each of the following. Don't forget *diatomic* elements!

a. aluminum metal reacts with bromine to form aluminum bromide

Answer

b. hydrochloric acid neutralizes aluminum hydroxide to form water & aluminum chloride

Answer_

c. hexane (C_6H_{14}) burns in oxygen to produce carbon dioxide and water

Answer

d.	carbon dioxide and water are reacted to produce glucose ($C_6H_{12}O_6$) and oxygen in photosynthesis
	Answer_
e.	aluminum nitrate reacts with lithium sulphate to form aluminum sulphate and lithium nitrate
	Answer
f.	ammonia and phosphoric acid react to form ammonium phosphate
	Answer_
g.	nitrogen dioxide reacts with water to form nitric acid and nitrogen monoxide
	Answer_
h.	bromine reacts with sodium iodide to produce iodine and sodium bromide
	Answer_
i.	calcium reacts in water to produce hydrogen gas and calcium hydroxide
	Answer
j.	butanol (C ₄ H ₉ OH) burns in oxygen to produce carbon dioxide and water
	Answer
k.	hydrogen peroxide decomposes to form water and oxygen gas
	Answer
1.	aluminum bromide reacts with ammonium dichromate to produce aluminum dichromate and ammonium bromide
	Answer