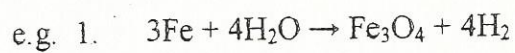
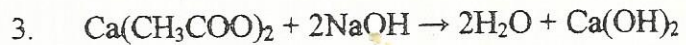
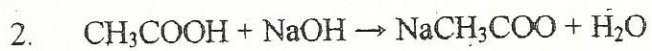
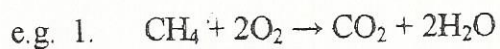


PSC-4012 Balancing Equations

A. What does a balanced chemical equation tell you?

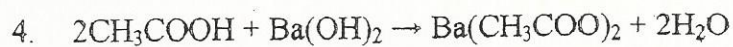
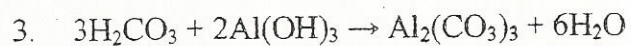
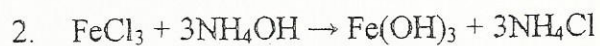


B. How many of each kind of atom are on each of the product and the reactant sides in the following equations?

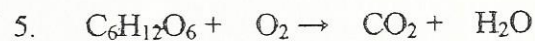
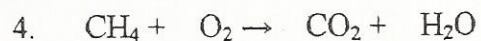
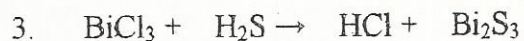
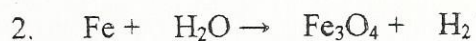
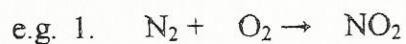


You try the following:

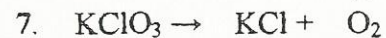
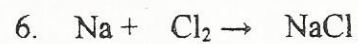
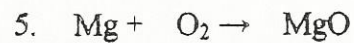
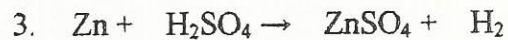
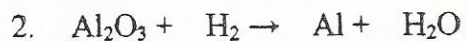
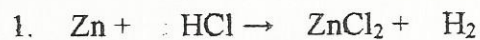




C. Balancing simple equations:



You try the following:



8. $\text{CaCO}_3 + \text{NaCl} \rightarrow \text{Na}_2\text{CO}_3 + \text{CaCl}_2$
9. $\text{Cl}_2 + \text{AlBr}_3 \rightarrow \text{Br}_2 + \text{AlCl}_3$
10. $\text{MnO}_2 + \text{HCl} \rightarrow \text{MnCl}_2 + \text{Cl}_2 + \text{H}_2\text{O}$
11. $\text{NaOH} + \text{H}_2\text{SO}_4 \rightarrow \text{Na}_2\text{SO}_4 + \text{H}_2\text{O}$
12. $\text{CuO} + \text{NH}_3 \rightarrow \text{N}_2 + \text{H}_2\text{O} + \text{Cu}$
13. $\text{Ca(OH)}_2 + \text{HNO}_3 \rightarrow \text{Ca(NO}_3)_2 + \text{H}_2\text{O}$
14. $\text{CaCO}_3 + \text{HCl} \rightarrow \text{CaCl}_2 + \text{H}_2\text{O} + \text{CO}_2$
15. $\text{C}_3\text{H}_8 + \text{O}_2 \rightarrow \text{CO}_2 + \text{H}_2\text{O}$

D. Balancing Using Decimals

- e.g. 1. $\text{Al} + \text{HCl} \rightarrow \text{AlCl}_3 + \text{H}_2$
2. $\text{C}_4\text{H}_{10} + \text{O}_2 \rightarrow \text{CO}_2 + \text{H}_2\text{O}$
 3. $\text{HCl} + \text{O}_2 \rightarrow \text{Cl}_2 + \text{H}_2\text{O}$
 4. $\text{HNO}_3 \rightarrow \text{H}_2\text{O} + \text{NO}_2 + \text{O}_2$
 5. $\text{Fe}_2\text{O}_3 \rightarrow \text{Fe} + \text{O}_2$

You try:

1. $\text{C}_6\text{H}_6 + \text{O}_2 \rightarrow \text{CO}_2 + \text{H}_2\text{O}$
2. $\text{Fe} + \text{O}_2 \rightarrow \text{Fe}_2\text{O}_3$
3. $\text{ZnS} + \text{O}_2 \rightarrow \text{ZnO} + \text{SO}_2$
4. $\text{C}_8\text{H}_{18} + \text{O}_2 \rightarrow \text{H}_2\text{O} + \text{CO}_2$
5. $\text{Fe} + \text{O}_2 + \text{H}_2\text{O} \rightarrow \text{Fe(OH)}_3$
6. $\text{FeS} + \text{O}_2 \rightarrow \text{Fe}_2\text{O}_3 + \text{SO}_2$
7. $\text{SO}_2 + \text{O}_2 \rightarrow \text{SO}_3$
8. $\text{Ca}_3(\text{PO}_4)_2 + \text{SiO}_2 + \text{C} \rightarrow \text{CaSiO}_3 + \text{CO} + \text{P}_4$

E. More Practice – Mixed Up Types

1. $C_{12}H_{22}O_{11} + O_2 \rightarrow CO_2 + H_2O$
2. $C_{10}H_{22} + O_2 \rightarrow CO_2 + H_2O$
3. $CaCO_3 + NaCl \rightarrow Na_2CO_3 + CaCl_2$
4. $C_2H_2 + O_2 \rightarrow CO_2 + H_2O$
5. $FeS_2 + O_2 \rightarrow Fe_2SO_3 + SO_2$
6. $C_9H_{20} + O_2 \rightarrow CO_2 + H_2O$
7. $P_4 + O_2 \rightarrow P_2O_5$
8. $S_8 + O_2 + H_2O \rightarrow H_2SO_4$
9. $C_5H_{11}OH + O_2 \rightarrow CO_2 + H_2O$
10. $MnO_2 + HCl \rightarrow MnCl_2 + Cl_2 + H_2O$
11. $C_2H_5OH + O_2 \rightarrow CO_2 + H_2O$
12. $C_{20}H_{42} + O_2 \rightarrow CO_2 + H_2O$