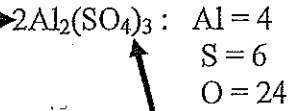


Name
Chemical Formulas
Chemistry

Coefficients: increase to balance a chemical reaction

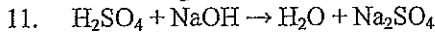


Subscripts: Changing the subscript changes the substance (Don't touch) ☹

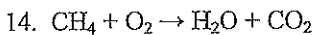
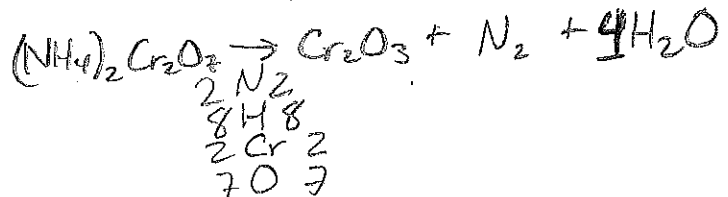
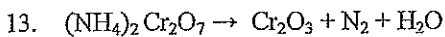
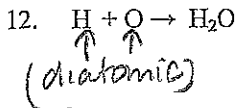
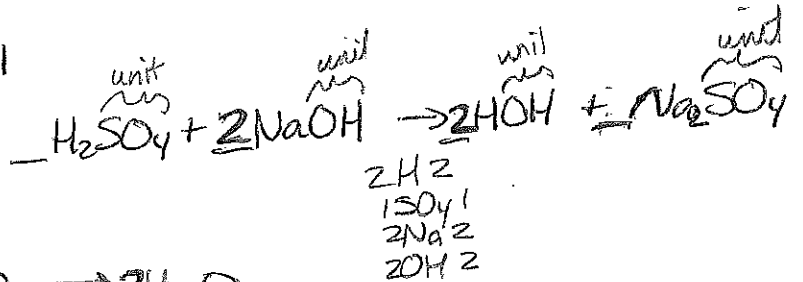
Determine the number of atoms in each formula.

- Na_2CO_3
N = 2
C = 1
O = 3
- Al_2S_3
Al = 2
S = 3
- $\text{Mg}_3(\text{PO}_4)_2$
Mg = 3
P = 2
O = 8
- $\text{Mg}(\text{C}_2\text{H}_3\text{O}_2)_2$
Mg = 1
C = 4
H = 6
O = 4
- P_4O_8
P = 4
O = 8
- $2\text{C}_6\text{H}_{12}\text{O}_6$
C = 12
H = 24
O = 12
- $4\text{NH}_4\text{NO}_3$
N = 8
H = 16
O = 12
- $3(\text{NH}_4)_3\text{P}$
N = 9
H = 36
P = 3
- $2\text{Al}_2(\text{SO}_4)_3$
Al = 4
S = 6
O = 24
- $\text{Al}_2(\text{Cr}_2\text{O}_7)_3$
Al = 2
Cr = 6
O = 21

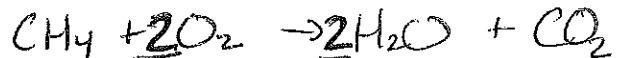
Balance the following



↑
rewrite as HOH



61

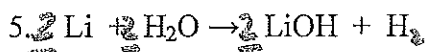
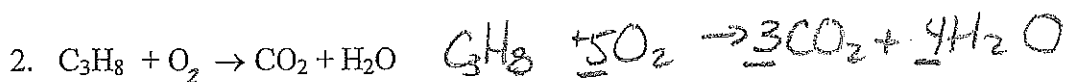
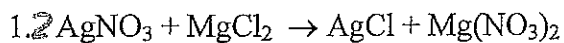


NAME
CHEMISTRY
BALANCING 1

NOTE:

- Watch for Super 7 atoms. H₂ N₂ O₂ F₂ Cl₂ Br₂ I₂
- Always come in pairs when not bonded to another atom.

Balance the following reactions.



Write the word equations below as chemical equations and balance.

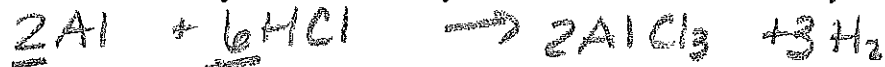
6. zinc + lead(II) nitrate yield zinc nitrate + lead



7. sodium phosphate + calcium chloride yield calcium phosphate + sodium chloride



8. aluminum + hydrochloric acid yield aluminum chloride + hydrogen gas



9. Magnesium metal + Oxygen yields magnesium Oxide

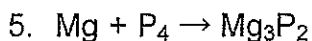
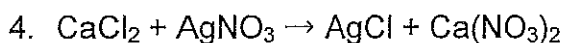
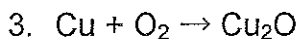
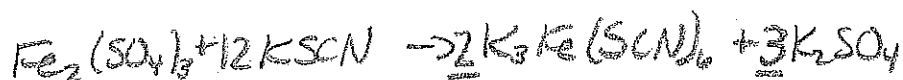
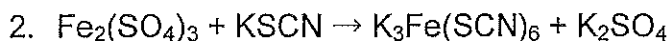
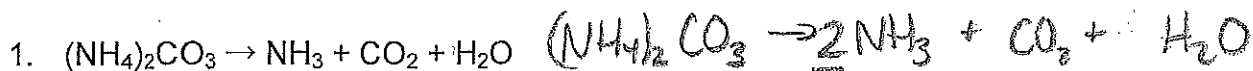


10. Butane (C₄H₁₀) + Oxygen gas yields carbon dioxide and Water.

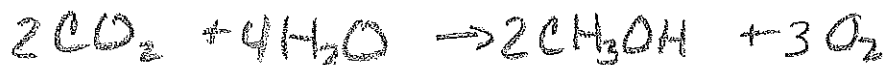
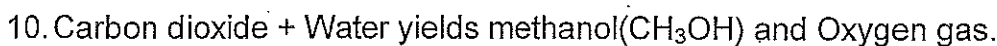
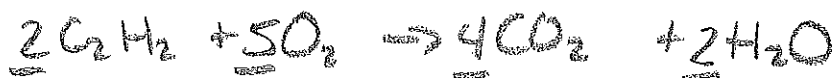
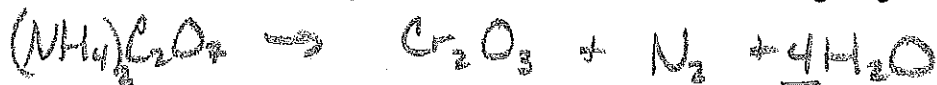
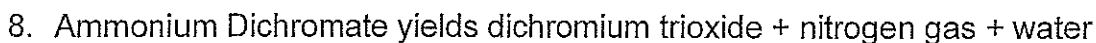
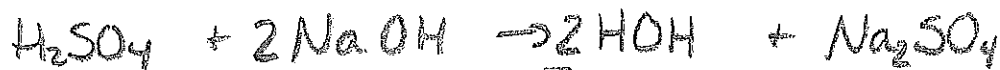
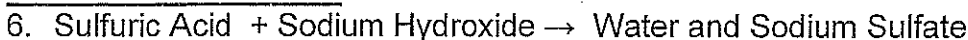


NAME
CHEMISTRY
BALANCING 2

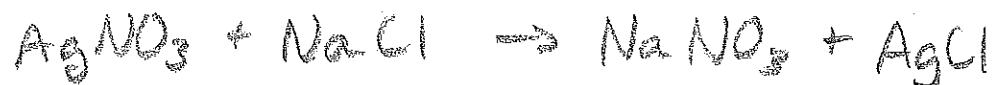
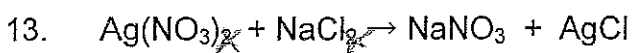
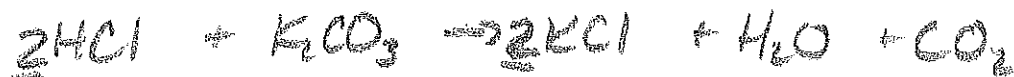
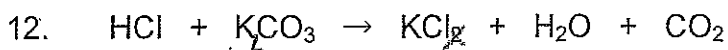
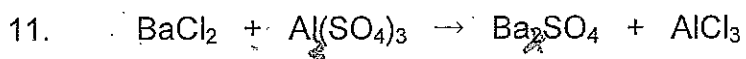
Balance



Translate and balance



In the following Chemical reactions fix any problems and balance.



Name:

What is an oxidation reduction reaction?

Oxidation states:
Oxygen: -2
Hydrogen: +1
Ionic compounds: $\text{Na}_2\text{O} = \text{Na}^{+1} \text{O}^{-2}$
* all oxidation states must equal overall charge.

Determine the oxidation states for the following substances

1. NaBr $\text{Na}^{+1} \text{Br}^{-1}$
2. H_2O $\text{H}^{+1} \text{O}^{-2}$
3. CH_4 $\text{C}^{-4} \text{H}^{+1}$
4. $\text{Cr}(\text{NO}_3)_3$ $\text{Cr}^{+3} \text{NO}_3^{-1}$ $\text{C}^{+4} \text{O}^{-2}$
5. CaCO_3 $\text{Ca}^{+2} \text{C}^{+4} \text{O}^{-2}$
6. Na_2CrO_4 $\text{Na}^{+1} \text{Cr}^{+6} \text{O}^{-2}$
7. MnO_4^{-1} $\text{O}^{-2} \text{Mn}^{+7}$
8. SO_4^{-2} $\text{S}^{+6} \text{O}^{-2}$
9. $\text{C}_2\text{H}_3\text{O}_2^{-1}$ $\text{C}^{+3} \text{H}^{+1} \text{O}^{-2}$
10. C \rightarrow O (elemental form)

- In the following reactions label the oxidation states above each atom.
- Indicate if the reaction is in fact an oxidation reduction reaction.
- Indicate which reactant is being oxidized and reduced.

$\text{C}^{+3} \text{H}^{+1} \text{O}^{-2}$
↑
this is one very variable!

