Wednesday Jan 11, 2012

Answers pg 235 #1-4

Single and Double Replacement Reactions

Reminder:

Test Monday Jan 16

Warm-Up

1. Label each of the following reactions:
combustion (C), synthesis (S), or decomposition (D)

(D) $2H_2 + O_2 \Rightarrow 2H_2O$ (Synthesis)

zinc carbonate $\Rightarrow$ zine oxide + carbon dioxide

$CH_4 + 2\,O_2 \Rightarrow CO_2 + 2\,H_2O$ (Combustion)

$2CO + O_2 \Rightarrow 2CO_2$ (Synthesis)

$C_3H_8 + 5O_2 \Rightarrow 3CO_2 + 4H_2O$ (Combustion)

sodium chloride $\Rightarrow$ sodium + chloride

(Decomposition)

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1. synthesis means to put atoms or molecules together

example: $H_2 + O_2 \Rightarrow H_2O$ A+B → AB

decomposition means to break molecules apart

$H_2O \Rightarrow H_2 + O_2$ AB → A + B

2. a) synthesis
b) decomposition
c) snythesis
d) decomposition

3. a) $Fe + O_2 \longrightarrow Fe_2O_3$
b) $NaI \longrightarrow Na + I_2$
c) $H_2 + O_2 \longrightarrow H_2O$
d) $ZnCO_3 \longrightarrow ZnO + CO_2$

4. a) $4Fe + 3O_2 \longrightarrow 2Fe_2O_3$
b) $2NaI \longrightarrow 2Na + I_2$
c) $2H_2 + O_2 \longrightarrow 2H_2O$
d) $ZnCO_3 \longrightarrow ZnO + CO_2$

Reactions so far...

Combustion

element/compound + O_2 ⇒ oxides + energy

Ex. C_3H_8 + O_2 CO_2 + H_2O

Synthesis

two smaller particles (elements) ⇒ one molecule

Ex. Zn + O_2 ZnO

Decomposition

one molecule ⇒ smaller particles (elements)

Ex. ZnO Zn + O_2

Single Replacement Reactions

Single replacement reactions are chemical changes that involve an element and a compound as reactants.

e + c → e + c

⇒a metal displaces a metal, or a nonmetal displaces a nonmetal.

Ex. magnesium + silver nitrate ⇒ magnesium nitrate + silver

$Mg + Ag^{1+}NO_3^{1-} \rightarrow Mg^{2+}NO_3^{1-} + Ag$

$Mg + 2AgNO_3 \rightarrow Mg(NO_3)_2 + 2Ag$

Ex. bromine + calcium iodide ⇒ calcium bromide + iodine

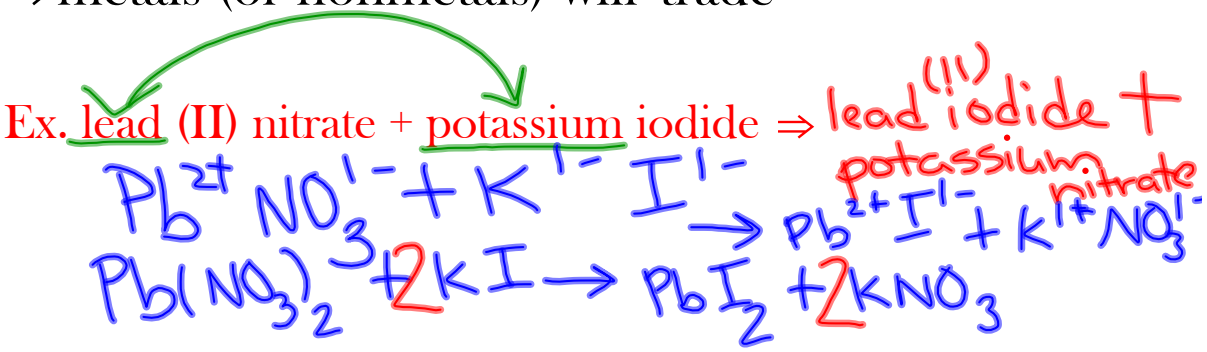
$Br_2 + Ca^{2+}I^{1-} \rightarrow Ca^{2+}Br^{1-} + I_2$

$Br_2 + CaI_2 \rightarrow CaBr_2 + I_2$

Double Replacement Reactions

Double replacement reactions are chemical changes that involve two compounds as reactants.

⇒metals (or nonmetals) will 'trade'



Homework

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