Writing Chemical Reactions

Activity 1 Predict the Products

Question Group 1

Question 1

Propane gas -C_3H_8 - undergoes combustion. Predict the formulae of the two products of the reaction.

CO_2 and H_2O
C_3O_2 and HO
C_3O_2 and H_2O
C_3O_2 and H_8O_2
CO_2 and $C_2H_8O_2$

Question 2

Butane gas -C_4H_{10} - undergoes combustion. Predict the formulae of the two products of the reaction.

CO_2 and H_2O
C_4O_2 and HO
C_4O_2 and H_2O
C_4O_2 and $H_{10}O_2$
CO_2 and $C_3H_{10}O_2$

Question Group 2

Question 3

Ammonia (NH_3) decomposes into its elements. Predict the formulae of the two products of the reaction.

N and H_2
N and H_3
N_2 and H_2
N_2 and H_3
NH and H_2

Question 4
Water decomposes into its elements. Predict the formulae of the two products of the reaction.

H and O_2
H_2 and O
H_2 and O_2
HO and H
HO and O_2

Question Group 3
Question 5
Aluminum and copper(II) sulfate undergo a single replacement reaction. Predict the formulae of the two products of the reaction.

Cu and $AlSO_4$
Al_2Cu_3 and SO_2
Cu and $Al_4(SO)_3$
Cu and $Al_2(SO_4)_3$
Cu_2 and $Al_2(SO_4)_3$

Question 6
Aluminum and copper(II) chloride undergo a single replacement reaction. Predict the formulae of the two products of the reaction.

Cu and AlCl
Cu and $AlCl_2$
Cu and $AlCl_3$
Al_2Cu_3 and Cl
Al_2Cu_3 and Cl_2

Question Group 4
Question 7
Sodium chloride and fluorine undergo a single replacement reaction. Predict the formulae of the two products of the reaction.

Na and FCl
Na and F_2Cl
NaF_2 and Cl
NaF and Cl_2
NaF_2 and Cl_2

Question 8
Potassium chloride and fluorine undergo a single replacement reaction. Predict the formulae of the two products of the reaction.

K and FCl
K and F_2Cl
KF_2 and Cl
KF and Cl_2
KF_2 and Cl_2

Question Group 5
Question 9
Potassium iodide and lead(II) nitrate undergo a double replacement reaction. Predict the formulae of the two products of the reaction.

K_2Pb and INO_3
KNO_3 and PbI_2
KPb and $I(NO_3)_2$
$K(NO_3)_2$ and PbI
$K(NO_3)_2$ and PbI_2

Question 10
Potassium chloride and lead(II) nitrate undergo a double replacement reaction. Predict the formulae of the two products of the reaction.

K_2Pb and $ClNO_3$
KNO_3 and $PbCl_2$
KPb and $Cl(NO_3)_2$
$K(NO_3)_2$ and PbCl
$K(NO_3)_2$ and $PbCl_2$

Question Group 6
Question 11
Sodium phosphate and silver(I) nitrate undergo a double replacement reaction. Predict the formulae of the two products of the reaction.

AgN and PO_4NO_3
Ag_4PO and $NaNO_3$
Ag_3PO_4 and $NaNO_3$
$Ag(PO_4)_3$ and Na_3NO
Ag_3N and $PO_4(NO_3)_3$

Question 12
Copper(II) hydroxide and sodium phosphate undergo a double replacement reaction. Predict the formulae of the two products of the reaction.

Cu_2Na and PO_4OH
Cu_2PO_4 and NaOH
Cu_3PO_4 and $Na(OH)_2$
$CuNa_2$ and $PO_4(OH)_3$
$Cu_3(PO_4)_2$ and NaOH

Activity 2 Writing Equations 1
Question Group 7
Question 13
The sentence below describes a chemical reaction. Write and balance the equation for this reaction.

Nitrogen reacts with oxygen to form nitrogen dioxide.

Question 14
The sentence below describes a chemical reaction. Write and balance the equation for this reaction.

Aluminum reacts with nitrogen to form aluminum nitride.

Question Group 8
Question 15
The sentence below describes a chemical reaction. Write and balance the equation for this reaction.

Aluminum reacts with bromine to form aluminum bromide.

Question 16
The sentence below describes a chemical reaction. Write and balance the equation for this reaction.

Sodium reacts with oxygen to form sodium oxide.

Question Group 9
Question 17
The sentence below describes a chemical reaction. Write and balance the equation for this reaction.

Magnesium oxide is synthesized from its elements.

Question 18
The sentence below describes a chemical reaction. Write and balance the equation for this reaction.

Calcium oxide is synthesized from its elements.

Question Group 10
Question 19
The sentence below describes a chemical reaction. Write and balance the equation for this reaction.

Manganese(III) iodide decomposes into its elements.

Question 20
The sentence below describes a chemical reaction. Write and balance the equation for this reaction.

Potassium chloride decomposes into its elements.

Question Group 11
Question 21
The sentence below describes a chemical reaction. Write and balance the equation for this reaction.

Silver(I) sulfate reacts with barium chloride to produce silver(I) chloride and barium sulfate.

Question 22
The sentence below describes a chemical reaction. Write and balance the equation for this reaction.

Lead(II) nitrate reacts with aluminum chloride to form lead(II) chloride and aluminum nitrate.

Question Group 12
Question 23
The sentence below describes a chemical reaction. Write and balance the equation for this reaction.

Titanium reacts with nitrogen to form titanium(IV) nitride.

Question 24
The sentence below describes a chemical reaction. Write and balance the equation for this reaction.

Iron reacts with nitrogen to form iron(III) nitride.

Activity 3 Writing Equations 2
Question Group 13
Question 25
The sentence below describes a chemical reaction. Write and balance the equation for this reaction.

Methane, CH_4, undergoes combustion.

Question 26
The sentence below describes a chemical reaction. Write and balance the equation for this reaction.

Propane, C_3H_8, undergoes combustion.

Question Group 14
Question 27
The sentence below describes a chemical reaction. Write and balance the equation for this reaction.

Ethanol, C_2H_6O, undergoes combustion.

Question 28
The sentence below describes a chemical reaction. Write and balance the equation for this reaction.

Butanol, $C_4H_{10}O$, undergoes combustion.

Question Group 15
Question 29
The sentence below describes a chemical reaction. Write and balance the equation for this reaction.

Barium chloride and sodium sulfate undergo a double replacement reaction.

Question 30
The sentence below describes a chemical reaction. Write and balance the equation for this reaction.

Silver(I) nitrate and sodium sulfate undergo a double replacement reaction.

Question Group 16
Question 31
The sentence below describes a chemical reaction. Write and balance the equation for this reaction.

Lead(II) nitrate and ammonium hydroxide undergo a double replacement reaction.

Question 32
The sentence below describes a chemical reaction. Write and balance the equation for this reaction.

Barium hydroxide and potassium carbonate undergo a double replacement reaction.

Question Group 17
Question 33
The sentence below describes a chemical reaction. Write and balance the equation for this reaction.

Fluorine reacts with aluminum chloride in a single replacement reaction.

Question 34
The sentence below describes a chemical reaction. Write and balance the equation for this reaction.

Chlorine reacts with aluminum bromide in a single replacement reaction.

Question Group 18
Question 35
The sentence below describes a chemical reaction. Write and balance the equation for this reaction.

Magnesium and copper(I) chloride undergo a single replacement reaction.

Question 36
The sentence below describes a chemical reaction. Write and balance the equation for this reaction.

Aluminum and copper(II) chloride undergo a single replacement reaction.