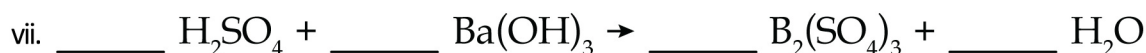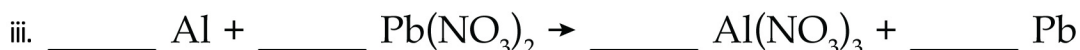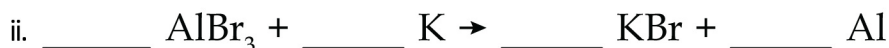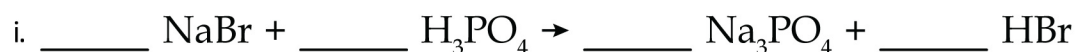# Balancing Equations

Part 1. Fill in the blanks with the most appropriate terms.

1) A balanced _____ tells the story of a chemical reaction. _____ are starting substances in the reaction, while _____ are new substances that form. The numbers in front of some of the formulas are called _____ . These numbers are used to _____ the equation because chemical reactions must obey the law of _____ of matter. The number of atoms of each element on both sides of the equation must be equal because matter cannot be _____ nor _____ . When balancing equations, the only numbers that can be changed are the _____ . Remember that _____ mustnever be changed in order to balance an equation.

Part B. Balance the following chemical equations.

i. _____ $NaBr$ + _____ H_3PO_4 → _____ Na_3PO_4 + _____ HBr

ii. _____ $AlBr_3$ + _____ K → _____ KBr + _____ Al

iii. _____ Al + _____ $Pb(NO_3)_2$ → _____ $Al(NO_3)_3$ + _____ Pb

iv. _____ HCl + _____ $CaCO_3$ → _____ $CaCl_2$ + _____ H_2O + _____ CO_2

v. _____ $Pb(OH)_2$ + _____ HCl → _____ H_2O + _____ $PbCl_2$

vi. _____ $CoBr_3$ + _____ $CaSO_4$ → _____ $CaBr_2$ + _____ $Co_2(SO_4)_3$

vii. _____ H_2SO_4 + _____ $Ba(OH)_3$ → _____ $B_2(SO_4)_3$ + _____ H_2O

viii. _____ Na_3PO_4 + _____ $CaCl_2$ → _____ $NaCl$ + _____ $Ca_3(PO_4)_2$
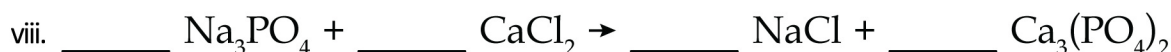
Balancing Equations

Answers

1) A balanced __equation__ tells the story of a chemical reaction. __Reactants__ are starting substances in the reaction, while __products__ are new substances that form. The numbers in front of some of the formulas are called __coefficients__ . These numbers are used to __balance__ the equation because chemical reactions must obey the law of __conservation__ of matter. The number of atoms of each element on both sides of the equation must be equal because matter cannot be __created__ nor __destroyed__ . When balancing equations, the only numbers that can be changed are the __coefficients__ . Remember that __formulas__ mustnever be changed in order to balance an equation.

i. __3__ $NaBr$ + __1__ H_3PO_4 → __1__ Na_3PO_4 + __3__ HBr

ii. __1__ $AlBr_3$ + __3__ K → __3__ KBr + __1__ Al

iii. __2__ Al + __3__ $Pb(NO_3)_2$ → __2__ $Al(NO_3)_3$ + __3__ Pb

iv. __2__ HCl + __1__ $CaCO_3$ → __1__ $CaCl_2$ + __1__ H_2O + __1__ CO_2

v. __1__ $Pb(OH)_2$ + __2__ HCl → __2__ H_2O + __1__ $PbCl_2$

vi. __2__ $CoBr_3$ + __3__ $CaSO_4$ → __3__ $CaBr_2$ + __1__ $Co_2(SO_4)_3$

vii. __3__ H_2SO_4 + __2__ $Ba(OH)_3$ → __1__ $B_2(SO_4)_3$ + __6__ H_2O

viii. __2__ Na_3PO_4 + __3__ $CaCl_2$ → __6__ $NaCl$ + __1__ $Ca_3(PO_4)_2$