Types of Chemical Reactions Worksheet

For each chemical reaction:
- Figure out what the product(s) would be
- Write the chemical formula for the reactants (use the criss cross rule!)
- Balance the equation

Note – In gases such as:
- oxygen
- nitrogen
- hydrogen
- iodine
- chlorine
- bromine

When the element is on its own, two atoms pair together!
i.e. H_2

1) Synthesis Reactions: two different molecules or atoms join to form a single substance. (A + B → AB)

Complete and balance the following equations:

a) ____ Al + ____ O_2 → ____

b) ____ C + ____ O_2 → ____

2) Decomposition Reactions: a single substance is broken down into two or more simpler substances. (AB → A + B)

Complete and balance the following equations:

a) ____ NH_3 → ____ + ____

b) ____ NI_3 → ____ + ____

3) Single Displacement Reactions: a free element (Z) reacts with a compound (AB) and takes the place of an element in the compound. (Z + AB → ZB + A)

Note: metals displace metals, non-metals displace non-metals!!

Complete and balance the following equations:

a) ____ Al + ____ Li_2O → ____ + ____

b) ____ Br_2 + ____ CaI_2 → ____ + ____

4) Double Displacement Reactions: elements (or polyatomic ions) in two different compounds switch places. (AB + YZ → AZ + YB)

a) ____ KNO_3 + ____ HBr → ____ + ____

b) ____ $CaCl_2$ + ____ $Al_2(SO_4)_3$ → ____ + ____