WORKSHEET ON SINGLE & DOUBLE REPLACEMENT REACTIONS

Predict the products. Write formulas & balance each reaction. If there is no reaction, then just put NO RXN.

Single Replacement: A + BC → B + AC or A + BC → C + BA (when A and C are negative ions)

1. Zinc + Hydrogen chloride →
2. Magnesium + Hydrogen Sulfate →
3. Copper (II) chloride + Flourine →
4. Silver + Sodium Hydroxide →
5. Potassium iodide + Bromine →
6. Calcium + Hydrogen hydroxide →
7. Iron IV oxide + Hydrogen →

Double Replacement: AB + CD → AD + CB

1. Barium chloride + Aluminum sulfate →
2. Calcium nitride + water →
3. Calcium hydroxide + Hydrogen phosphate →
4. Hydrogen sulfate + Sodium hydrogen carbonate →
5. Calcium hydroxide + Ammonium chloride →
6. Potassium iodide + Lead II Nitrate →
7. Sodium acetate + Calcium sulfide →

Complete each word equation, write formulas and balance the reaction equation. Then identify and place the type of reaction (single replacement or double replacement) in the blank provided.

1. Zinc + Silver nitrate →
2. Aluminum + Hydrogen chloride →
3. Magnesium oxalate + Ammonium carbonate →
4. Calcium + Aluminum nitrate →
5. Potassium flouride + Lead (II) Nitrate →
6. Calcium bromide + Silver nitrate →
7. Ammonium phosphate + Barium acetate →
8. Sodium chloride + Potassium →
9. Magnesium nitrate + ammonium chloride →
10. Iron (III) chlorate + calcium →
11. Chlorine + Sodium bromide →
12. Potassium chloride + Silver nitrate →
13. Calcium hydroxide + Hydrogen nitrate →
14. Lead II nitrate + Potassium chloride →
15. Strontium carbonate + Hydrogen nitrate →
16. Gold + Potassium nitrate →
17. Zinc + Silver nitrate →
18. Aluminum + Copper II sulfate →

Answer Key

Double Replacement Reactions / Double Displacement Reactions

- Switch partners so that the metals are now partnered with the opposite nonmetal.
- Each time you write formulas, be sure to criss-cross the charges involved. Do not pay attention to the subscripts from the reactants as they do not necessarily apply to the products.
- These reactions normally occur when they produce a covalent compound as a product, like water or when they produce a gas like CO2 or an insoluble solid that settles out of the solution. We will look into solubility in the spring. For now, assume the reactions I give you will actually occur.

Practice problems on the back.

Answer Key

WORKSHEET ON SINGLE & DOUBLE REPLACEMENT REACTIONS

Predict the products. Write formulas. **If there is no reaction, then just put NO RXN.**

Single Replacement: A + BC → B + AC or A + BC → C + BA (when A and C are negative ions)

1. Zinc + Hydrogen chloride → $H_2 + ZnCl_2$
2. Magnesium + Hydrogen Sulfate → $MgSO_4 + H_2$
3. Copper (II) chloride + Flourine → $CuF_2 + Cl_2$
4. Silver + Sodium Hydroxide → No RxN
5. Potassium iodide + Bromine → $KBr + I_2$
6. Calcium + Hydrogen hydroxide → $Ca(OH)_2 + H_2$
7. Iron IV oxide + Hydrogen → $Fe + H_2O$

Double Replacement: AB + CD → AD + CB

1. Barium chloride + Aluminum sulfate → $BaSO_4 + AlCl_3$
2. Calcium nitride + water → $Ca(OH)_2 + HNO_3$
3. Calcium hydroxide + Hydrogen phosphate → $Ca_3(PO_4)_2 + H_2O$
4. Hydrogen sulfate + Sodium hydrogen carbonate → $H_2CO_3 + Na_2SO_4$
5. Calcium hydroxide + Ammonium chloride → $CaCl_2 + NH_4OH$
6. Potassium iodide + Lead II Nitrate → $KNO_3 + PbI_2$
7. Sodium acetate + Calcium sulfide → $Na_2S + Ca(C_2H_3O_2)_2$

Complete each word equation, write formulas. Then identify and place the type of reaction (single replacement or double replacement) in the blank provided.

Be sure to Check if a Single Replacement reaction will occur.

SR 1. Zinc + Silver nitrate → $Ag + Zn(NO_3)_2$
SR 2. Aluminum + Hydrogen chloride → $AlCl_3 + H_2$
DR 3. Magnesium oxalate + Ammonium carbonate → $MgCO_3 + (NH_4)_2C_2O_4$
SR 4. Calcium + Aluminum nitrate → $Ca(NO_3)_2 + Al$
DR 5. Potassium flouride + Lead (II) Nitrate → $KNO_3 + PbF_2$
DR 6. Calcium bromide + Silver nitrate → $Ca(NO_3)_2 + AgBr_2$
DR 7. Ammonium phosphate + Barium acetate → $NH_4C_2H_3O_2 + Ba_3(PO_4)_2$
SR 8. Sodium chloride + Potassium → $Na + KCl$
DR 9. Magnesium nitrate + ammonium chloride → $MgCl_2 + NH_4NO_3$
SR 10. Iron (III) chlorate + calcium → $Ca(ClO_3)_2 + Fe$
SR 11. Chlorine + Sodium bromide → $NaCl + Br_2$
DR 12. Potassium chloride + Silver nitrate → $KNO_3 + AgCl$
DR 13. Calcium hydroxide + Hydrogen nitrate → $Ca(NO_3)_2 + H_2O$
DR 14. Lead II nitrate + Potassium chloride → $PbCl_2 + KNO_3$
DR 15. Strontium carbonate + Hydrogen nitrate → $H_2CO_3 + Sr(NO_3)_2$
SR 16. Gold + Potassium nitrate → No Reaction
SR 17. Zinc + Silver nitrate → $Zn(NO_3)_2 + Ag$
SR 18. Aluminum + Copper II sulfate → $Al_2(SO_4)_3 + Cu$