Name: _____

Chemical Reactions

Review Worksheet - ANSWERS

Balance the chemical equations:

1. $1\ Na_3PO_4 + 3\ KOH \rightarrow 3\ NaOH + 1\ K_3PO_4$
2. $1\ MgF_2 + 1\ Li_2CO_3 \rightarrow 1\ MgCO_3 + 2\ LiF$
3. $1\ P_4 + 3\ O_2 \rightarrow 2\ P_2O_3$
4. $2\ RbNO_3 + 1\ BeF_2 \rightarrow 1\ Be(NO_3)_2 + 2\ RbF$
5. $2\ AgNO_3 + 1\ Cu \rightarrow 1\ Cu(NO_3)_2 + 2\ Ag$
6. $1\ CF_4 + 2\ Br_2 \rightarrow 1\ CBr_4 + 2\ F_2$
7. $2\ HCN + 1\ CuSO_4 \rightarrow 1\ H_2SO_4 + 1\ Cu(CN)_2$
8. $1\ GaF_3 + 3\ Cs \rightarrow 3\ CsF + 1\ Ga$
9. $1\ BaS + 1\ PtF_2 \rightarrow 1\ BaF_2 + 1\ PtS$
10. $1\ N_2 + 3\ H_2 \rightarrow 2\ NH_3$
11. $2\ NaF + 1\ Br_2 \text{ -> } 2\ NaBr + 1\ F_2$
12. $1\ Pb(OH)_2 + 2\ HCl \text{ -> } 2\ H_2O + 1\ PbCl_2$
13. $2\ AlBr_3 + 3\ K_2SO_4 \text{ -> } 6\ KBr + 1\ Al_2(SO_4)_3$
14. $1\ CH_4 + 2\ O_2 \text{ -> } 1\ CO_2 + 2\ H_2O$
15. $2\ Na_3PO_4 + 3\ CaCl_2 \text{ -> } 6\ NaCl + 1\ Ca_3(PO_4)_2$
16. $2\ K + 1\ Cl_2 \text{ -> } 2\ KCl$
17. $2\ Al + 6\ HCl \text{ -> } 3\ H_2 + 2\ AlCl_3$
18. $1\ N_2 + 3\ F_2 \text{ -> } 2\ NF_3$
19. $1\ SO_2 + 2\ Li_2Se \text{ -> } 1\ SSe_2 + 2\ Li_2O$
20. $2\ NH_3 + 1\ H_2SO_4 \text{ -> } 1\ (NH_4)_2SO_4$

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Identify the reaction type:

1. Synthesis $4Na + O_2 \rightarrow 2Na_2O$
2. Decomposition $2H_2O \rightarrow 2H_2 + O_2$
3. Double replacement $Sb_2S_3 + 6HCl \rightarrow 2SbCl_3 + 3H_2S$
4. Combustion $2C_2H_6 + 7O_2 \rightarrow 6H_2O + 4CO_2$
5. Single replacement $Cl_2 + 2KBr \rightarrow Br_2 + 2KCl$
6. Decomposition $KClO_4 \rightarrow KCl + 2O_2$
7. Synthesis $H_2 + Cl_2 \rightarrow 2HCl$
8. Single replacement $2Al_2O_3 + 3C \rightarrow 4Al + 3CO_2$
9. Combustion $2C_2H_5COOH + 7O_2 \rightarrow 6CO_2 + 6H_2O$
10. Single replacement $3MnCl_2 + 2Al \rightarrow 3Mn + 2AlCl_3$

Predict the products for each reaction:

1. $3\ Na + FeBr_3 \rightarrow 3\ NaBr + Fe$ (Single replacement)
2. $2\ NaOH + H_2SO_4 \rightarrow Na_2SO_4 + 2\ H_2O$ (Double replacement / neutralization)
3. $C_2H_4O_2 + 2\ O_2 \rightarrow 2\ CO_2 + 2\ H_2O$ (Combustion)
4. $PbSO_4 + 2\ AgNO_3 \rightarrow Ag_2SO_4 + Pb(NO_3)_2$ (Double replacement)
5. $2\ PBr_3 \rightarrow 2\ P + 3\ Br_2$ (Decomposition)
6. $6\ HBr + 2\ Fe \rightarrow 2\ FeBr_3 + 3\ H_2$ (Single replacement)
7. $2\ KMnO_4 + ZnCl_2 \rightarrow 2\ KCl + Zn(MnO_4)_2$ (Double replacement)
8. $MnO_2 + Sn(OH)_4 \rightarrow SnO_2 + Mn(OH)_4$ (Double replacement)