Solutions for videoworksheet- balancing equations

7. a. $Fe + O_2 \rightarrow Fe_2O_3$

Balanced: $4Fe + 3O_2 \rightarrow 2Fe_2O_3$

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b. $Na + Cl_2 \rightarrow NaCl$

Balanced: $2Na + Cl_2 \rightarrow 2NaCl$

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c. $Mg + HCl \rightarrow MgCl_2 + H_2$

Balanced: $Mg + 2HCl \rightarrow MgCl_2 + H_2$

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d. $Al + O_2 \rightarrow Al_2O_3$

Balanced: $4Al + 3O_2 \rightarrow 2Al_2O_3$

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e. $K + H_2O \rightarrow KOH + H_2$

Balanced: $2K + 2H_2O \rightarrow 2KOH + H_2$

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f. $C_3H_8 + O_2 \rightarrow CO_2 + H_2O$

Balanced: $C_3H_8 + 5O_2 \rightarrow 3CO_2 + 4H_2O$

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g. $Ca + N_2 \rightarrow Ca_3N_2$

Balanced: $3Ca + N_2 \rightarrow Ca_3N_2$

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h. $C_2H_6 + O_2 \rightarrow CO_2 + H_2O$

Balanced: $2C_2H_6 + 7O_2 \rightarrow 4CO_2 + 6H_2O$

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i. $Fe + H_2SO_4 \rightarrow Fe_2(SO_4)_3 + H_2$

Balanced: $2Fe + 3H_2SO_4 \rightarrow Fe_2(SO_4)_3 + 3H_2$

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j. $P_4 + O_2 \rightarrow P_2O_5$

Balanced: $P_4 + 5O_2 \rightarrow 2P_2O_5$

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k. $Na + H_2O \rightarrow NaOH + H_2$
Balanced: $2Na + 2H_2O \rightarrow 2NaOH + H_2$

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l. $Cu + AgNO_3 \rightarrow Cu(NO_3)_2 + Ag$
Balanced: $Cu + 2AgNO_3 \rightarrow Cu(NO_3)_2 + 2Ag$

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m. $C_4H_{10} + O_2 \rightarrow CO_2 + H_2O$
Balanced: $2C_4H_{10} + 13O_2 \rightarrow 8CO_2 + 10H_2O$

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n. $Al + HCl \rightarrow AlCl_3 + H_2$
Balanced: $2Al + 6HCl \rightarrow 2AlCl_3 + 3H_2$

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o. $Ca(OH)_2 + H_3PO_4 \rightarrow Ca_3(PO_4)_2 + H_2O$
Balanced: $3Ca(OH)_2 + 2H_3PO_4 \rightarrow Ca_3(PO_4)_2 + 6H_2O$

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p. $KClO_3 \rightarrow KCl + O_2$
Balanced: $2KClO_3 \rightarrow 2KCl + 3O_2$

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q. $Zn + HCl \rightarrow ZnCl_2 + H_2$
Balanced: $Zn + 2HCl \rightarrow ZnCl_2 + H_2$

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8. Acid-Base Reactions

a. Hydrochloric acid + sodium hydroxide
$HCl + NaOH \rightarrow NaCl + H_2O$

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b. Sulfuric acid + potassium hydroxide
$H_2SO_4 + 2KOH \rightarrow K_2SO_4 + 2H_2O$

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c. Nitric acid + calcium hydroxide
$2HNO_3 + Ca(OH)_2 \rightarrow Ca(NO_3)_2 + 2H_2O$

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d. Hydrochloric acid + magnesium hydroxide
$2HCl + Mg(OH)_2 \rightarrow MgCl_2 + 2H_2O$

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e. Acetic acid + sodium hydroxide
$CH_3COOH + NaOH \rightarrow CH_3COONa + H_2O$

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f. Phosphoric acid + sodium hydroxide
$H_3PO_4 + 3NaOH \rightarrow Na_3PO_4 + 3H_2O$

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g. Hydrochloric acid + ammonia
$HCl + NH_3 \rightarrow NH_4Cl$

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h. Sulfuric acid + ammonia
$H_2SO_4 + 2NH_3 \rightarrow (NH_4)_2SO_4$

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i. Citric acid + potassium hydroxide
$C_6H_8O_7 + 3KOH \rightarrow C_6H_5O_7K_3 + 3H_2O$

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j. Carbonic acid + sodium hydroxide
$H_2CO_3 + 2NaOH \rightarrow Na_2CO_3 + 2H_2O$