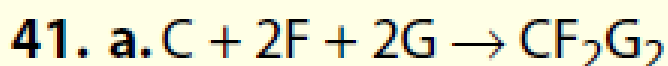


- 36. a.** reactants: sodium and water; products: hydrogen and sodium hydroxide
b. reactants: carbon dioxide and water; products: oxygen and glucose
- 37.** Dalton said that the atoms of reactants are rearranged to form new substances as products.
- 38.** The arrow separates the reactants from the products and indicates a reaction that progresses in the forward direction. A plus sign separates individual reactants and individual products from one another.
- 39. a.** Gaseous ammonia and oxygen react in the presence of a platinum catalyst to produce nitrogen monoxide gas and water vapor.
b. Aqueous solutions of sulfuric acid and barium chloride are mixed to produce a precipitate of barium sulfate and aqueous hydrochloric acid.
c. The gas dinitrogen trioxide reacts with water to produce an aqueous solution of nitrous acid.

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40. A catalyst speeds up a chemical reaction.

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42. A formula is a unique identifier of a substance. A different formula would indicate a different substance, not the one that is taking part in the reaction you are trying to balance.

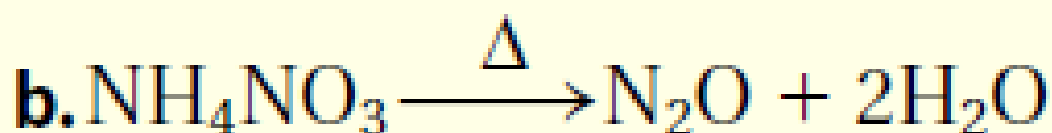
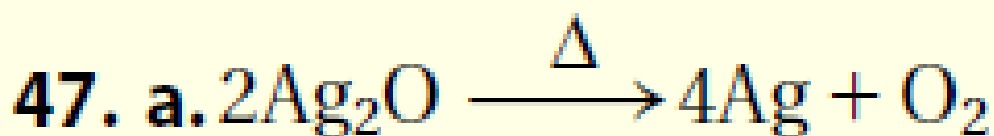


44. a single product

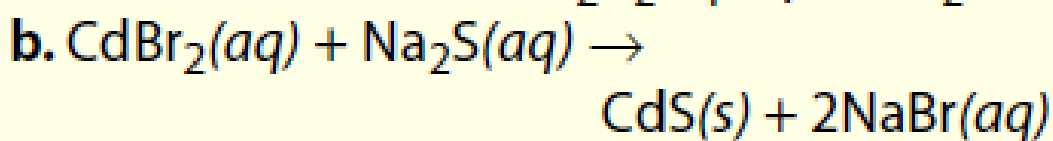
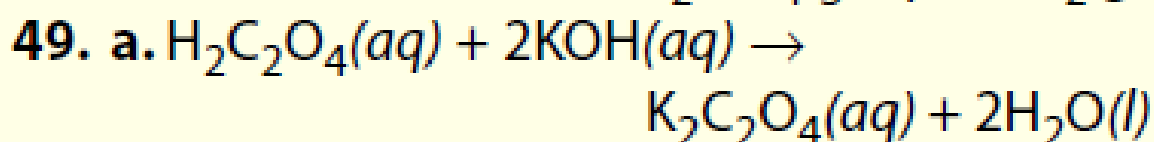
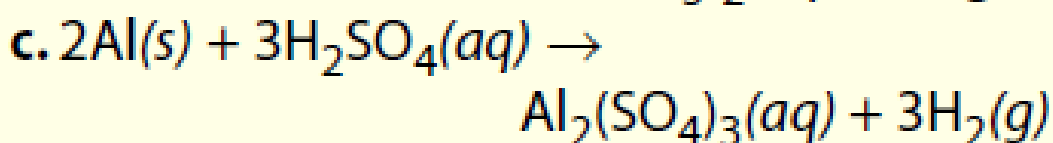
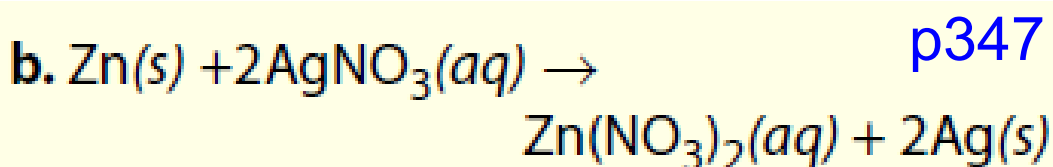
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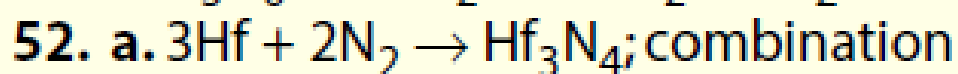
46. a single reactant



48. a. no reaction



50. oxygen



b. $\text{Mg} + \text{H}_2\text{SO}_4 \rightarrow \text{MgSO}_4 + \text{H}_2$; single replacement

c. $2\text{C}_2\text{H}_6 + 7\text{O}_2 \rightarrow 4\text{CO}_2 + 6\text{H}_2\text{O}$; combustion

d. $\text{Pb}(\text{NO}_3)_2 + 2\text{NaI} \rightarrow \text{PbI}_2 + 2\text{NaNO}_3$; double replacement

e. $3\text{Fe} + 2\text{O}_2 \rightarrow \text{Fe}_3\text{O}_4$; combination

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