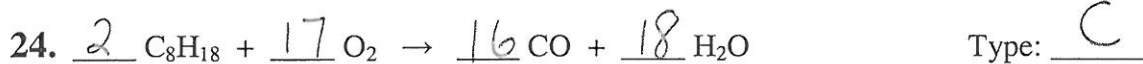
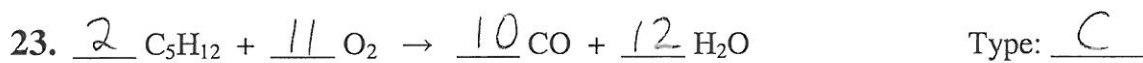
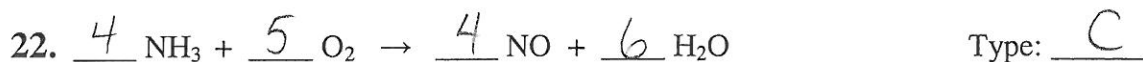
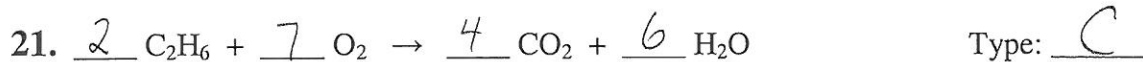


Answer Key

Chemical Reactions Review

Balance and classify the following reactions. Use S for synthesis, C for combustion, D for decomposition, SR for single replacement and DR for double replacement.

- $6 \text{ Na}_2\text{O} + \text{P}_4\text{O}_{10} \rightarrow 4 \text{ Na}_3\text{PO}_4$ Type: S
- $\text{C}_{12}\text{H}_{22}\text{O}_{11} + 12 \text{ O}_2 \rightarrow 12 \text{ CO}_2 + 11 \text{ H}_2\text{O}$ Type: C
- $3 \text{ MnO}_2 + 4 \text{ Al} \rightarrow 2 \text{ Al}_2\text{O}_3 + 3 \text{ Mn}$ Type: SR
- $2 \text{ C}_2\text{H}_6 + 7 \text{ O}_2 \rightarrow 6 \text{ H}_2\text{O} + 4 \text{ CO}_2$ Type: C
- $2 \text{ NaI} + \text{Cl}_2 \rightarrow 2 \text{ NaCl} + \text{I}_2$ Type: SR
- $2 \text{ KClO}_3 \rightarrow 2 \text{ KCl} + 3 \text{ O}_2$ Type: D
- $3 \text{ H}_2 + \text{N}_2 \rightarrow 2 \text{ NH}_3$ Type: S
- $6 \text{ O}_2 + \text{C}_6\text{H}_{12}\text{O}_6 \rightarrow 6 \text{ H}_2\text{O} + 6 \text{ CO}_2$ Type: C
- $\text{Br}_2 + 2 \text{ H}_2\text{O} + \text{SO}_2 \rightarrow 2 \text{ HBr} + \text{H}_2\text{SO}_4$ Type: S
- $3 \text{ KOH} + \text{H}_3\text{PO}_4 \rightarrow \text{K}_3\text{PO}_4 + 3 \text{ H}_2\text{O}$ Type: DR
- $\text{P}_4 + 5 \text{ O}_2 \rightarrow 2 \text{ P}_2\text{O}_5$ Type: S
- $\text{Al}_2(\text{SO}_4)_3 + 3 \text{ Ca}(\text{OH})_2 \rightarrow 2 \text{ Al}(\text{OH})_3 + 3 \text{ CaSO}_4$ Type: DR
- $2 \text{ NaClO}_3 \rightarrow 2 \text{ NaCl} + 3 \text{ O}_2$ Type: D
- $\text{S}_8 + 8 \text{ O}_2 \rightarrow 8 \text{ SO}_2$ Type: S
- $2 \text{ C}_6\text{H}_6 + 15 \text{ O}_2 \rightarrow 12 \text{ CO}_2 + 6 \text{ H}_2\text{O}$ Type: C
- $2 \text{ C}_2\text{H}_2 + 5 \text{ O}_2 \rightarrow 4 \text{ CO}_2 + 2 \text{ H}_2\text{O}$ Type: C
- $\text{C}_3\text{H}_8 + 5 \text{ O}_2 \rightarrow 3 \text{ CO}_2 + 4 \text{ H}_2\text{O}$ Type: C
- $2 \text{ AlI}_3 + 3 \text{ HgCl}_2 \rightarrow 2 \text{ AlCl}_3 + 3 \text{ HgI}_2$ Type: DR
- $3 \text{ AgNO}_3 + \text{K}_3\text{PO}_4 \rightarrow \text{Ag}_3\text{PO}_4 + 3 \text{ KNO}_3$ Type: DR
- $6 \text{ F}_2 + 2 \text{ Al}_2\text{O}_3 \rightarrow 4 \text{ AlF}_3 + 3 \text{ O}_2$ Type: SR



Write the formulas for the following word equations and balance them.

1. Barium nitrate + sulfuric acid → barium sulfate + nitric acid



2. aluminum sulfate + sodium hydroxide → aluminum hydroxide + sodium sulfate



3. lithium phosphate → lithium + phosphorus (P₄) + oxygen



4. cobalt (III) chloride + potassium hydroxide → potassium chloride + cobalt (III) hydroxide



5. manganese + hydrochloric acid → manganese (II) chloride + hydrogen



6. cesium iodide + bromine → cesium bromide + iodine



7. strontium + chlorine + oxygen → strontium chlorate



8. paraffin (C₂₅H₅₂) + oxygen → carbon dioxide + water



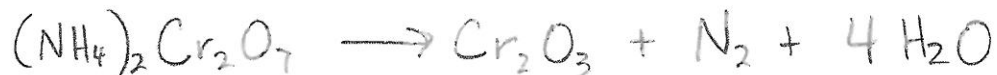
9. nickel (II) chlorate → nickel (II) chloride + oxygen



10. phosphorus (P₄) + oxygen → diphosphorus pentoxide



11. ammonium dichromate → chromium (III) oxide + nitrogen + water



12. aluminum + copper (II) nitrate → aluminum nitrate + copper



13. barium chloride + sodium hydroxide → sodium chloride + barium hydroxide



14. aluminum + hydrochloric acid → aluminum chloride + hydrogen



15. potassium hydroxide + antimony (III) chloride → potassium chloride + antimony (III) oxide + water



16. carbon tetrahydride + oxygen → carbon dioxide + water



17. hydrogen + carbon monoxide + oxygen → carbonic acid



18. barium chlorate → barium chloride + oxygen



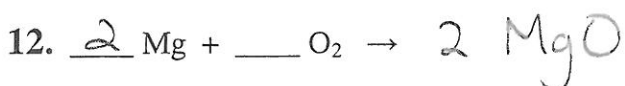
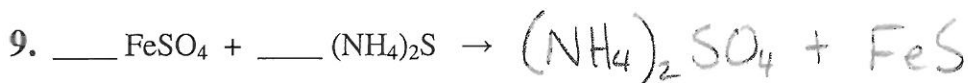
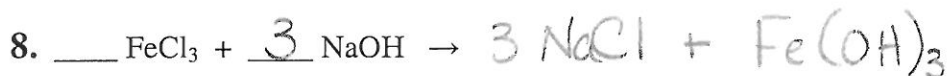
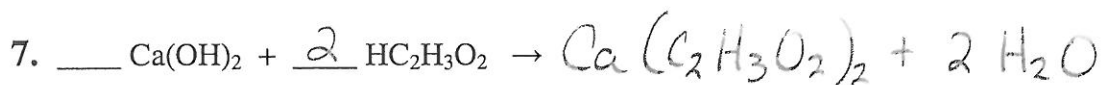
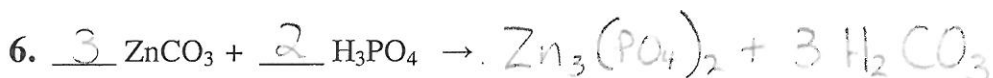
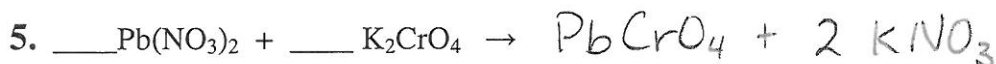
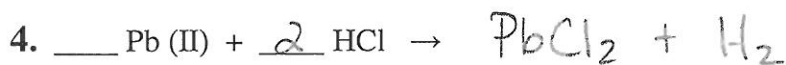
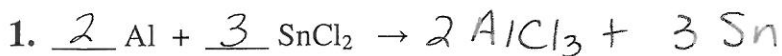
19. sodium nitrate → sodium nitrite + oxygen

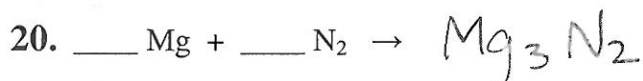
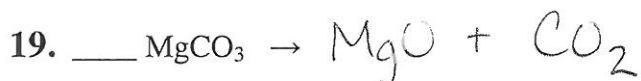
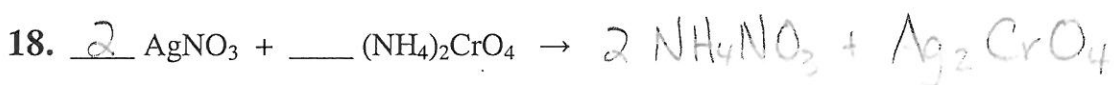
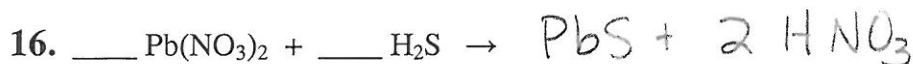
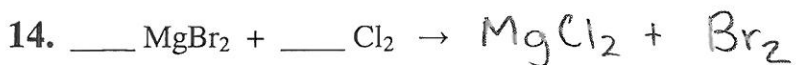


20. sulfur trioxide + water → sulfuric acid



Complete and balance each of the following reactions





Write and balance the equation corresponding to each description

1. Sodium hydroxide reacts with carbon dioxide gas to produce sodium carbonate and water.



2. Magnesium burning in air produces magnesium oxide.



3. Iron reacting with sulfur produces iron (II) sulfide.



4. Iron oxidizes in the presence of oxygen to form iron (II) oxide.



5. Hydrogen gas reacts with elemental sulfur to form hydrosulfuric acid.



6. Dihydrogen monosulfide reacts with oxygen to form elemental sulfur and water.



7. Zinc sulfide combined with sulfuric acid reacts to form zinc sulfate and dihydrogen monosulfide.



8. Ammonium chloride and silver nitrate combine to form silver chloride and ammonium nitrate.



9. Zinc chloride reacts with dihydrogen monosulfide gas to yield zinc sulfide and hydrochloric acid.



10. Lead (IV) nitrate reacts with sodium sulfate to yield lead (IV) sulfate and sodium nitrate.



11. Aluminum hydroxide reacts with nitric acid to yield soluble aluminum nitrate and liquid water.



12. Water added to calcium oxide produces calcium hydroxide.

