

## 9-2 Practice Problems

1. Write the formula equation for the following reaction: Ammonia reacts with hydrogen chloride to form ammonium chloride.
2. When heated, calcium carbonate ( $\text{CaCO}_3$ ) decomposes to form calcium oxide and carbon dioxide. Write an equation for this reaction.
3. Write the formula equation for the following reaction: Barium oxide ( $\text{BaO}$ ) reacts with water to form barium hydroxide.
4. Acetaldehyde ( $\text{CH}_3\text{CHO}$ ) decomposes to form methane ( $\text{CH}_4$ ) and carbon monoxide. Write an equation for this reaction.
5. Write the formula equation for the following reaction: Zinc reacts with copper(II) nitrate ( $\text{Cu}(\text{NO}_3)_2$ ) to form zinc nitrate and copper.
6. When heated, calcium sulfite ( $\text{CaSO}_3$ ) decomposes to form calcium oxide and sulfur dioxide. Write an equation for this reaction.
7. Write the formula equation for the following reaction: Iron reacts with sulfuric acid ( $\text{H}_2\text{SO}_4$ ) to form iron(II) sulfate ( $\text{FeSO}_4$ ) and hydrogen gas.
8. Azomethane ( $\text{C}_2\text{H}_6\text{N}_2$ ) decomposes to form ethane ( $\text{C}_2\text{H}_6$ ) and nitrogen gas at  $297^\circ\text{C}$ . Write an equation for this reaction.
9. Write out the formula equation for the following reaction: Carbon monoxide reacts with chlorine gas to form phosgene ( $\text{COCl}_2$ ).
10. Manganese(II) iodide decomposes when exposed to light to form manganese and iodine. Write an equation for this reaction.

What I will change

\* I will change this by working with the last 10 as homework. The students must choose 3 to provide real world examples of the reactions occurring. I also plan to use the balanced equations to then have the students predict what is occurring/give just the reactants and have them predict the products.

Real world examples may be found on youtube or examples from student life.

**9-2 Practice Problems (continued)**

11. Write a balanced chemical equation for the reaction in which dinitrogen pentoxide ( $\text{N}_2\text{O}_5$ ) reacts with water to produce nitric acid ( $\text{HNO}_3$ ).
12. Magnesium reacts with titanium(IV) chloride ( $\text{TiCl}_4$ ) to produce magnesium chloride ( $\text{MgCl}_2$ ) and titanium. Write the balanced equation for this reaction.
13. Write a balanced chemical equation for the reaction in which carbon reacts with zinc oxide to produce zinc and carbon dioxide.
14. Bromine reacts with sodium iodide to form sodium bromide and iodine. Write the balanced equation for this reaction.
15. Write a balanced chemical equation for the reaction in which phosphorus trichloride ( $\text{PCl}_3$ ) reacts with chlorine gas to produce phosphorus pentachloride ( $\text{PCl}_5$ ).
16. Phosphorus reacts with bromine to produce phosphorus tribromide ( $\text{PBr}_3$ ). Write the balanced equation for this reaction.
17. Calcium hydride ( $\text{CaH}_2$ ) reacts with water to produce calcium hydroxide ( $\text{Ca(OH)}_2$ ) and hydrogen gas. Write the balanced equation for this reaction.
18. Write a balanced chemical equation for the reaction in which sulfuric acid ( $\text{H}_2\text{SO}_4$ ) reacts with potassium hydroxide to produce potassium sulfate ( $\text{K}_2\text{SO}_4$ ) and water.
19. Write a balanced chemical equation for the reaction in which propane ( $\text{C}_3\text{H}_8$ ) reacts with oxygen gas to produce carbon dioxide and water.
20. Benzene ( $\text{C}_6\text{H}_6$ ) reacts with oxygen gas to produce carbon dioxide and water. Write the balanced equation for this reaction.