

Chemical Reactions Test Review

Use this review as a practice. These exact questions will not be asked, but the concepts reviewed here will be tested. Remember to make a cheat sheet that will help you on your test. You will get the periodic table and the polyatomic ion chart. This review will be a stamp grade. Be prepared to turn it in right before the test.

1. What is the law of conservation of mass?

A scientific law that states that you cannot create or destroy matter. We see it in chemical reactions because the total mass of the reactants you start with must equal the total mass of the products you form in the reaction.

2. How does the law of conservation of mass apply to chemical reactions?

The total mass of the reactants you start with must equal the total mass of the products you form. You cannot create more products than the reactants you started with. This means that the number of each type of atom must be equal on both sides of the reaction to follow the law of conservation of mass and that is why we balance chemical equations when they are written.

3. In the reaction for the formation of magnesium phosphide, you create 250 grams of magnesium phosphide. $\text{Mg} + \text{P} \rightarrow \text{Mg}_3\text{P}_2$ Use the law of conservation of mass to tell the mass of the reactants and explain how you know the mass of the reactants.

The total mass of Mg + P on the reactant side must equal 250 g since you formed 250 g of magnesium phosphide.

Know the symbols for these things in chemical reactions.

4. Solid (s)

5. Liquid (l)

6. Aqueous solution (aq)

7. Gas (g)

8. Yields, or forms \longrightarrow

9. Heat was added $\xrightarrow{\Delta}$

10. Reversible reaction \rightleftharpoons

Know the diatomic elements, and how to write them in a reaction. $\text{H}_2, \text{N}_2, \text{O}_2, \text{F}_2, \text{Cl}_2, \text{Br}_2, \text{I}_2$

Be able to identify reaction types. (Writing the generic forms may help you identify types, $A + B \rightarrow AB$ is synthesis.)

11. $\text{HCl} + \text{Zn} \rightarrow \text{ZnCl}_2 + \text{H}_2$ Single Replacement

12. $\text{H}_2\text{CO}_3 \rightarrow \text{H}_2\text{O} + \text{CO}_2$ Decomposition

13. $\text{H}_2\text{SO}_4 + \text{KOH} \rightarrow \text{K}_2\text{SO}_4 + \text{H}_2\text{O}$ Double-Replacement

14. $\text{C}_3\text{H}_8 + \text{O}_2 \rightarrow \text{CO}_2 + \text{H}_2\text{O}$ Decomposition

15. $\text{Al} + \text{CuCl}_2 \rightarrow \text{AlCl}_3 + \text{Cu}$ Single-Replacement

16. $\text{H}_2\text{O}_2 \rightarrow \text{H}_2\text{O} + \text{O}_2$ Decomposition

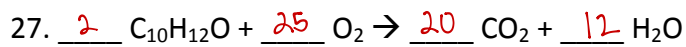
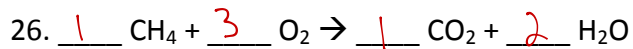
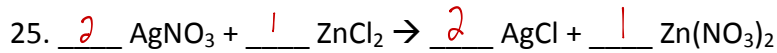
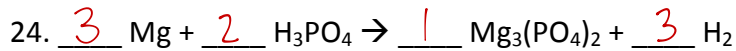
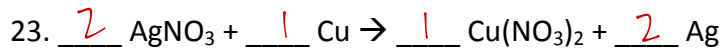
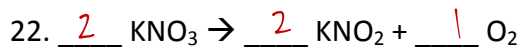
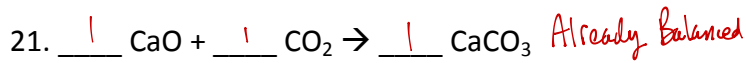
17. $\text{HCl} + \text{KOH} \rightarrow \text{KCl} + \text{H}_2\text{O}$ Double Replacement

18. $\text{Mg} + \text{F}_2 \rightarrow \text{MgF}_2$ Synthesis

19. What are the reactants and products of a complete combustion reaction? $\text{C}_x\text{H}_x + \text{O}_2 \rightarrow \text{CO}_2 + \text{H}_2\text{O}$

20. What are the reactants and products of an incomplete combustion reaction? $\text{C}_x\text{H}_x + \text{O}_2 \rightarrow \text{CO} + \text{H}_2\text{O}$

Be able to balance chemical reactions.



Combinations are the hardest to balance... Start by making the H subscript on the reactants = the water coefficient on the product side, then Balance Carbon & save oxygen for last.

Old information that is still relevant:

28. Which is a molecule and why? (NaCl or N_2O_5) \rightarrow molecules are made from only Non-metals.

29. How would you name the following?

a. Al(OH)_3 *Aluminum Hydroxide*

b. SO_3 *Sulfur trioxide*

c. N_2O_5 *dinitrogen pentoxide*

d. $\text{Ca}_3(\text{PO}_4)_2$ *Calcium phosphate*

e. Fe_2O_3 *Iron(III) oxide*

30. Write the following formulas.

a. Calcium oxide $\text{Ca}^{2+} \text{O}^{2-} \Rightarrow \text{CaO}$

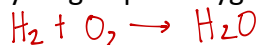
b. Trinitrogen pentoxide N_3O_5

c. Magnesium sulfate $\text{Mg}^{2+} \text{SO}_4^{2-} \Rightarrow \text{MgSO}_4$

d. Phosphoric acid $\text{H}^+ \text{PO}_4^{3-} \Rightarrow \text{H}_3\text{PO}_4 (\text{aq})$

31. Be able to translate a formula into words.

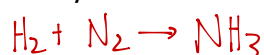
a. Hydrogen plus oxygen form water



b. Magnesium added to phosphoric acid forms magnesium phosphate and hydrogen.



c. Write the synthesis reaction for the formation of NH_3



d. Write the single replacement reaction that occurs when you combine solid aluminum with iron

