

Name KEY Period: All Chem Date: _____

Review: Chemical Reactions

1. What is a physical change?

A change that can be observed using our senses
- No change in composition

2. What is a chemical change?

A change that changes the composition + makes
new substances

3. Circle all of the following that indicate that a chemical change may have taken place.

- A. precipitate forms
- B. color change
- C. gas forms
- D. change of state
- E. temperature change

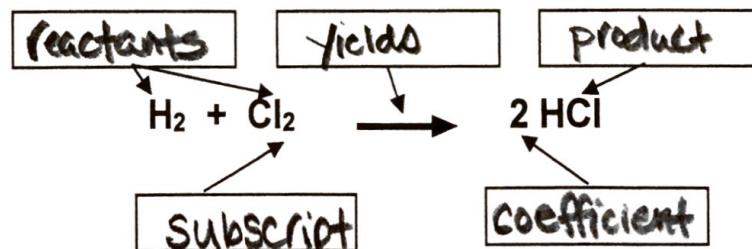
4. Label the changes as chemical or physical:

- a) iron oxidizing to form rust C
- b) ice melting to form liquid water P
- c) methane gas burning C
- d) silver corroding C
- e) a crayon breaking P

5. What do the following symbols mean when they are used in chemical equations?

- A. (l) liquid
- B. (aq) aqueous solution
- C. (g) gas
- D. (s) solid

6. Label each of the following: *product, reactants, subscript, coefficient, yields*



7. How many atoms of each element are represented by:

- a) $2 \text{Na}_2\text{SO}_4$ Na = 4 S = 2 O = 8
- b) $3 \text{Ba}_3(\text{PO}_4)_2$ Ba = 9 P = 6 O = 24

8. According to the law of conservation of mass, matter can neither be created nor destroyed. Atoms can only rearranged.

9. After a chemical reaction, the mass of products is C equal to the original mass of reactants.

A. never

B. sometimes

C. always

10. What does it mean to "balance" a chemical equation?

By balancing a chem. rxn you make sure the # and type of atom is the same on both sides of the equation

11. Consider the double-replacement reaction: $\text{Ba}(\text{HCO}_3)_2 + \text{FeSO}_4 \rightarrow \underline{\hspace{2cm}} + \underline{\hspace{2cm}}$

Which of the following would you expect to be one of the products for this reaction?

A. BaFe

B. SO_4Ba

C. FeBa

D. $\text{Fe}(\text{HCO}_3)_2$

12. A combustion reaction is always a reaction of a hydrocarbon with oxygen, forming carbon dioxide and water.

For questions #22-29,

CLASSIFY the reaction as one of the five types by writing in the blank.

BALANCE the reaction using coefficients when necessary.

S.R. 22. $\underline{\hspace{1cm}} \text{Zn} + \underline{2} \text{HNO}_3 \rightarrow \underline{\hspace{1cm}} \text{Zn}(\text{NO}_3)_2 + \underline{\hspace{1cm}} \text{H}_2$

S. 23. $\underline{\hspace{1cm}} \text{CO}_2 + \underline{\hspace{1cm}} \text{H}_2\text{O} \rightarrow \underline{\hspace{1cm}} \text{H}_2\text{CO}_3$

D.R. 24. $\underline{\hspace{1cm}} \text{CaCO}_3 + \underline{2} \text{HCl} \rightarrow \underline{\hspace{1cm}} \text{CaCl}_2 + \underline{\hspace{1cm}} \text{H}_2\text{CO}_3$

S.R. 25. $\underline{2} \text{AgNO}_3 + \underline{\hspace{1cm}} \text{Pb} \rightarrow \underline{\hspace{1cm}} \text{Pb}(\text{NO}_3)_2 + \underline{2} \text{Ag}$

D. 26. $\underline{2} \text{K}_2\text{SO}_3 \rightarrow \underline{2} \text{K}_2\text{S} + \underline{3} \text{O}_2$

C 27. $\underline{\hspace{1cm}} \text{C}_5\text{H}_{12} + \underline{8} \text{O}_2 \rightarrow \underline{5} \text{CO}_2 + \underline{6} \text{H}_2\text{O}$

C 28. $\underline{2} \text{C}_2\text{H}_6 + \underline{7} \text{O}_2 \rightarrow \underline{4} \text{CO}_2 + \underline{6} \text{H}_2\text{O}$

S.R. 29. $\underline{2} \text{Cs} + \underline{2} \text{H}_2\text{O} \rightarrow \underline{2} \text{CsOH} + \underline{\hspace{1cm}} \text{H}_2$