

Name _____

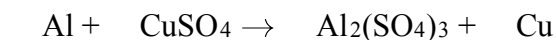
_____ 1. Which equation shows conservation of atoms?

- A) $\text{H}_2 + \text{O}_2 \rightarrow \text{H}_2\text{O}$
- B) $\text{H}_2 + \text{O}_2 \rightarrow 2\text{H}_2\text{O}$
- C) $2\text{H}_2 + \text{O}_2 \rightarrow 2\text{H}_2\text{O}$
- D) $2\text{H}_2 + 2\text{O}_2 \rightarrow 2\text{H}_2\text{O}$

_____ 2. Which equation shows a conservation of mass?

- A) $\text{Na} + \text{Cl}_2 \rightarrow \text{NaCl}$
- B) $\text{Al} + \text{Br}_2 \rightarrow \text{AlBr}_3$
- C) $\text{H}_2\text{O} \rightarrow \text{H}_2 + \text{O}_2$
- D) $\text{PCl}_5 \rightarrow \text{PCl}_3 + \text{Cl}_2$

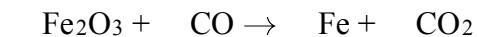
_____ 3. Given the unbalanced equation:



When the equation is balanced using the *smallest* whole-number coefficients, what is the coefficient of Al?

- A) 1 B) 2 C) 3 D) 4

_____ 4. Given the unbalanced equation:



When the equation is correctly balanced using the *smallest* whole-number coefficients, what is the coefficient of CO?

- A) 1 B) 2 C) 3 D) 4

_____ 5. If an equation is balanced properly, both sides of the equation must have the same number of

- A) atoms
- B) coefficients
- C) molecules
- D) moles of molecules

_____ 6. Given the unbalanced equation:



What is the coefficient of O_2 when the equation is balanced correctly using the *smallest* whole number coefficients?

- A) 1 B) 2 C) 3 D) 4

_____ 7. Given the unbalanced equation:



What is the coefficient of $\text{Al}_2(\text{SO}_4)_3$ when the equation is completely balanced using the smallest whole-number coefficients?

- A) 1 B) 2 C) 3 D) 4

_____ 8. Given the incomplete equation:



Which compound is represented by X?

- A) FeO B) Fe_2O_3
- C) Fe_3O_2 D) Fe_3O_4

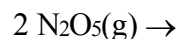
_____ 9. Given the balanced equation:



Which molecule is represented by X?

- A) C_2H_4 B) C_2H_6
- C) C_3H_6 D) C_3H_8

_____ 10. Given the incomplete equation:



Which set of products completes and balances the incomplete equation?

- A) $2 \text{N}_2(\text{g}) + 3 \text{H}_2(\text{g})$
- B) $2 \text{N}_2(\text{g}) + 2 \text{O}_2(\text{g})$
- C) $4 \text{NO}_2(\text{g}) + \text{O}_2(\text{g})$
- D) $4 \text{NO}(\text{g}) + \text{SO}_2(\text{g})$

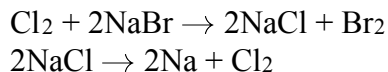
_____ 11. Given the balanced equation:



What is the correct formula for the product represented by the letter X?

- A) NaO B) Na_2O
- C) NaOH D) Na_2OH

12. Given the balanced equations representing two chemical reactions:



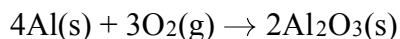
Which type of chemical reactions are represented by these equations?

- A) single replacement and decomposition
- B) single replacement and double replacement
- C) synthesis and decomposition
- D) synthesis and double replacement

13. Which balanced equation represents a single-replacement reaction?

- A) $\text{Mg} + 2\text{AgNO}_3 \rightarrow \text{Mg}(\text{NO}_3)_2 + 2\text{Ag}$
- B) $2\text{Mg} + \text{O}_2 \rightarrow 2\text{MgO}$
- C) $\text{MgCO}_3 \rightarrow \text{MgO} + \text{CO}_2$
- D) $\text{MgCl}_2 + 2\text{AgNO}_3 \rightarrow 2\text{AgCl} + \text{Mg}(\text{NO}_3)_2$

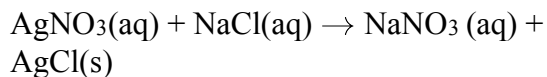
14. Given the balanced equation representing a reaction:



Which type of chemical reaction is represented by this equation?

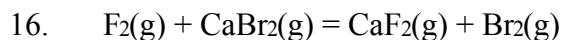
- A) double replacement
- B) single replacement
- C) substitution
- D) synthesis

15. Given the balanced equation:



This reaction is classified as

- A) synthesis
- B) decomposition
- C) single replacement
- D) double replacement



What type of reaction is shown above?

- A) synthesis
- B) decomposition
- C) single replacement
- D) double replacement

17. According to Reference Table J, which of these metals will react most readily with 1.0 M HCl to produce $\text{H}_2(\text{g})$?

- A) Ca
- B) K
- C) Mg
- D) Zn

18. Referring to Reference Table J, which reaction will not occur under standard conditions?

- A) $\text{Sn}(\text{s}) + 2\text{HCl}(\text{aq}) \rightarrow \text{SnCl}_2(\text{aq}) + \text{H}_2(\text{g})$
- B) $\text{Cu}(\text{s}) + 2\text{HCl}(\text{aq}) \rightarrow \text{CuCl}_2(\text{aq}) + \text{H}_2(\text{g})$
- C) $\text{Ba}(\text{s}) + 2\text{HCl}(\text{aq}) \rightarrow \text{BaCl}_2(\text{aq}) + \text{H}_2(\text{g})$
- D) $\text{Mg}(\text{s}) + 2\text{HCl}(\text{aq}) \rightarrow \text{MgCl}_2(\text{aq}) + \text{H}_2(\text{g})$

19. Based on Reference Table J, which of the following elements will replace Pb from $\text{Pb}(\text{NO}_3)_2(\text{aq})$?

- A) Mg(s)
- B) Au(s)
- C) Cu(s)
- D) Ag(s)

20. According to Reference Table J, which pair will react spontaneously at 298K?

- A) Cu + H_2O
- B) Ag + H_2O
- C) Ca + H_2O
- D) Au + H_2O