

Name: \_\_\_\_\_  
Hour: \_\_\_\_\_ Date: \_\_\_\_\_

## Chemistry: *Balancing Chemical Equations*

**Directions:** First, balance each of the chemical equations below. Then, classify each reaction as **synthesis**, **decomposition**, **single-replacement**, or **double-replacement**. To earn full credit, write the words out when classifying.

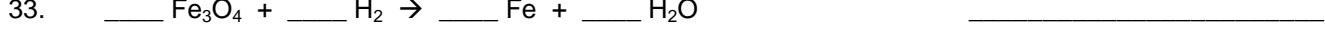
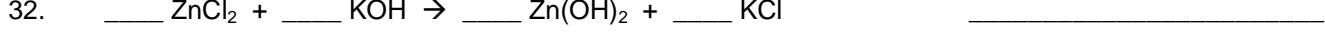
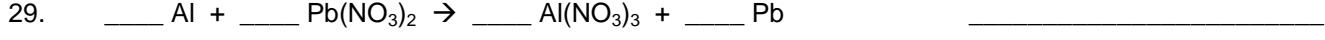
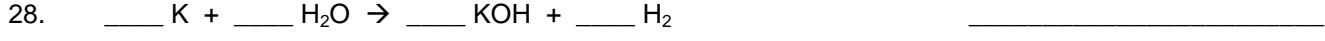
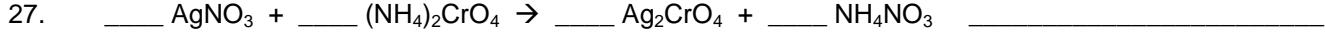
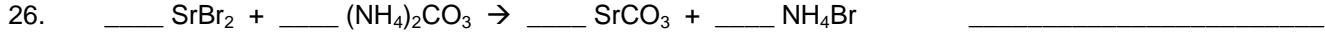
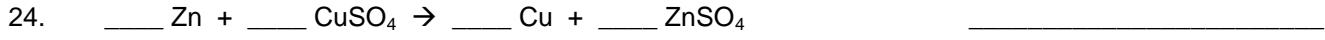
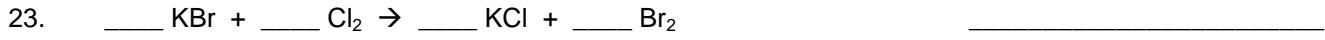
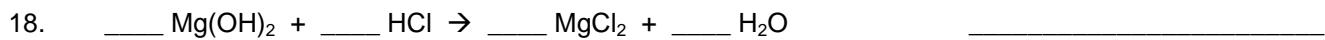
**Balance the equation...**

**...and classify it.**

1.  $\underline{\hspace{1cm}} \text{Sb} + \underline{\hspace{1cm}} \text{Cl}_2 \rightarrow \underline{\hspace{1cm}} \text{SbCl}_3$  \_\_\_\_\_
2.  $\underline{\hspace{1cm}} \text{Mg} + \underline{\hspace{1cm}} \text{O}_2 \rightarrow \underline{\hspace{1cm}} \text{MgO}$  \_\_\_\_\_
3.  $\underline{\hspace{1cm}} \text{CaCl}_2 \rightarrow \underline{\hspace{1cm}} \text{Ca} + \underline{\hspace{1cm}} \text{Cl}_2$  \_\_\_\_\_
4.  $\underline{\hspace{1cm}} \text{NaClO}_3 \rightarrow \underline{\hspace{1cm}} \text{NaCl} + \underline{\hspace{1cm}} \text{O}_2$  \_\_\_\_\_
5.  $\underline{\hspace{1cm}} \text{Fe} + \underline{\hspace{1cm}} \text{HCl} \rightarrow \underline{\hspace{1cm}} \text{FeCl}_2 + \underline{\hspace{1cm}} \text{H}_2$  \_\_\_\_\_
6.  $\underline{\hspace{1cm}} \text{CuO} + \underline{\hspace{1cm}} \text{H}_2 \rightarrow \underline{\hspace{1cm}} \text{Cu} + \underline{\hspace{1cm}} \text{H}_2\text{O}$  \_\_\_\_\_
7.  $\underline{\hspace{1cm}} \text{Al} + \underline{\hspace{1cm}} \text{H}_2\text{SO}_4 \rightarrow \underline{\hspace{1cm}} \text{Al}_2(\text{SO}_4)_3 + \underline{\hspace{1cm}} \text{H}_2$  \_\_\_\_\_
8.  $\underline{\hspace{1cm}} \text{MgBr}_2 + \underline{\hspace{1cm}} \text{Cl}_2 \rightarrow \underline{\hspace{1cm}} \text{MgCl}_2 + \underline{\hspace{1cm}} \text{Br}_2$  \_\_\_\_\_
9.  $\underline{\hspace{1cm}} \text{SnO}_2 + \underline{\hspace{1cm}} \text{C} \rightarrow \underline{\hspace{1cm}} \text{Sn} + \underline{\hspace{1cm}} \text{CO}$  \_\_\_\_\_
10.  $\underline{\hspace{1cm}} \text{Pb(NO}_3)_2 + \underline{\hspace{1cm}} \text{H}_2\text{S} \rightarrow \underline{\hspace{1cm}} \text{PbS} + \underline{\hspace{1cm}} \text{HNO}_3$  \_\_\_\_\_
11.  $\underline{\hspace{1cm}} \text{HgO} \rightarrow \underline{\hspace{1cm}} \text{Hg} + \underline{\hspace{1cm}} \text{O}_2$  \_\_\_\_\_
12.  $\underline{\hspace{1cm}} \text{KClO}_3 \rightarrow \underline{\hspace{1cm}} \text{KCl} + \underline{\hspace{1cm}} \text{O}_2$  \_\_\_\_\_
13.  $\underline{\hspace{1cm}} \text{N}_2 + \underline{\hspace{1cm}} \text{H}_2 \rightarrow \underline{\hspace{1cm}} \text{NH}_3$  \_\_\_\_\_
14.  $\underline{\hspace{1cm}} \text{NaBr} + \underline{\hspace{1cm}} \text{Cl}_2 \rightarrow \underline{\hspace{1cm}} \text{NaCl} + \underline{\hspace{1cm}} \text{Br}_2$  \_\_\_\_\_
15.  $\underline{\hspace{1cm}} \text{Zn} + \underline{\hspace{1cm}} \text{AgNO}_3 \rightarrow \underline{\hspace{1cm}} \text{Zn(NO}_3)_2 + \underline{\hspace{1cm}} \text{Ag}$  \_\_\_\_\_
16.  $\underline{\hspace{1cm}} \text{Sn} + \underline{\hspace{1cm}} \text{Cl}_2 \rightarrow \underline{\hspace{1cm}} \text{SnCl}_4$  \_\_\_\_\_
17.  $\underline{\hspace{1cm}} \text{Ba(OH)}_2 \rightarrow \underline{\hspace{1cm}} \text{BaO} + \underline{\hspace{1cm}} \text{H}_2\text{O}$  \_\_\_\_\_

**Balance the equation...**

**...and classify it.**

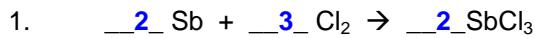


## Chemistry: *Balancing Chemical Equations*

Directions: First, balance each of the chemical equations below. Then, classify each reaction as **synthesis**, **decomposition**, **single-replacement**, or **double-replacement**. To earn full credit, write the words out when classifying.

Balance the equation...

...and classify it.



synthesis



synthesis



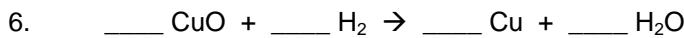
decomposition



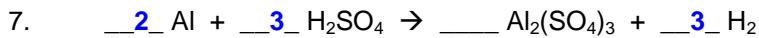
decomposition



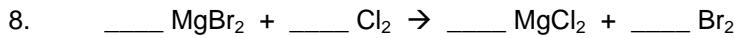
single replacement



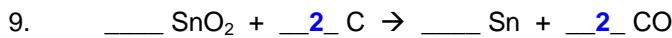
single replacement



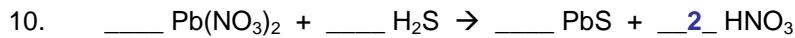
single replacement



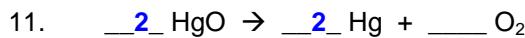
single replacement



single replacement



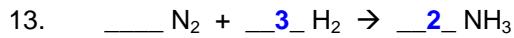
double replacement



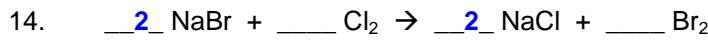
decomposition



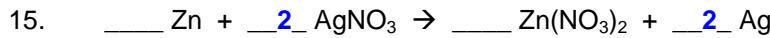
decomposition



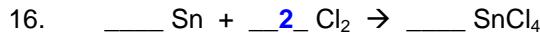
synthesis



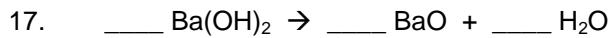
single replacement



single replacement



synthesis



decomposition

**Balance the equation...**

**...and classify it.**

- |     |  |                    |
|-----|--|--------------------|
| 18. | $\text{Mg(OH)}_2 + \underline{\text{2}} \text{ HCl} \rightarrow \underline{\text{ }} \text{MgCl}_2 + \underline{\text{2}} \text{ H}_2\text{O}$   | double replacement |
| 19. | $\underline{\text{ }} \text{Na}_2\text{CO}_3 + \underline{\text{2}} \text{ HCl} \rightarrow \underline{\text{2}} \text{ NaCl} + \underline{\text{ }} \text{H}_2\text{CO}_3$                      | double replacement |
| 20. | $\underline{\text{ }} \text{NH}_4\text{NO}_2 \rightarrow \underline{\text{ }} \text{N}_2 + \underline{\text{2}} \text{ H}_2\text{O}$   | decomposition      |
| 21. | $\underline{\text{2}} \text{ N}_2 + \underline{\text{5}} \text{ O}_2 \rightarrow \underline{\text{2}} \text{ N}_2\text{O}_5$   | synthesis          |
| 22. | $\underline{\text{ }} \text{MgCO}_3 \rightarrow \underline{\text{ }} \text{MgO} + \underline{\text{ }} \text{CO}_2$  | decomposition      |
| 23. | $\underline{\text{2}} \text{ KBr} + \underline{\text{ }} \text{Cl}_2 \rightarrow \underline{\text{2}} \text{ KCl} + \underline{\text{ }} \text{Br}_2$  | single replacement |
| 24. | $\underline{\text{ }} \text{Zn} + \underline{\text{ }} \text{CuSO}_4 \rightarrow \underline{\text{ }} \text{Cu} + \underline{\text{ }} \text{ZnSO}_4$  | single replacement |
| 25. | $\underline{\text{4}} \text{ P} + \underline{\text{3}} \text{ O}_2 \rightarrow \underline{\text{ }} \text{P}_4\text{O}_6$  | synthesis          |
| 26. | $\underline{\text{ }} \text{SrBr}_2 + \underline{\text{ }} (\text{NH}_4)_2\text{CO}_3 \rightarrow \underline{\text{ }} \text{SrCO}_3 + \underline{\text{2}} \text{ NH}_4\text{Br}$               | double replacement |
| 27. | $\underline{\text{2}} \text{ AgNO}_3 + \underline{\text{ }} (\text{NH}_4)_2\text{CrO}_4 \rightarrow \underline{\text{ }} \text{Ag}_2\text{CrO}_4 + \underline{\text{2}} \text{ NH}_4\text{NO}_3$ | double replacement |
| 28. | $\underline{\text{2}} \text{ K} + \underline{\text{2}} \text{ H}_2\text{O} \rightarrow \underline{\text{2}} \text{ KOH} + \underline{\text{ }} \text{H}_2$                                       | single replacement |
| 29. | $\underline{\text{2}} \text{ Al} + \underline{\text{3}} \text{ Pb(NO}_3)_2 \rightarrow \underline{\text{2}} \text{ Al(NO}_3)_3 + \underline{\text{3}} \text{ Pb}$                                | single replacement |
| 30. | $\underline{\text{3}} \text{ Fe} + \underline{\text{2}} \text{ O}_2 \rightarrow \underline{\text{ }} \text{Fe}_3\text{O}_4$  | synthesis          |
| 31. | $\underline{\text{4}} \text{ Li} + \underline{\text{ }} \text{O}_2 \rightarrow \underline{\text{2}} \text{ Li}_2\text{O}$  | synthesis          |
| 32. | $\underline{\text{ }} \text{ZnCl}_2 + \underline{\text{2}} \text{ KOH} \rightarrow \underline{\text{ }} \text{Zn(OH)}_2 + \underline{\text{2}} \text{ KCl}$                                      | double replacement |
| 33. | $\underline{\text{ }} \text{Fe}_3\text{O}_4 + \underline{\text{4}} \text{ H}_2 \rightarrow \underline{\text{3}} \text{ Fe} + \underline{\text{4}} \text{ H}_2\text{O}$                           | single replacement |
| 34. | $\underline{\text{ }} \text{Pb(NO}_3)_2 \rightarrow \underline{\text{ }} \text{Pb} + \underline{\text{2}} \text{ NO}_2 + \underline{\text{ }} \text{O}_2$  | decomposition      |
| 35. | $\underline{\text{2}} \text{ H}_2\text{O} \rightarrow \underline{\text{2}} \text{ H}_2 + \underline{\text{ }} \text{O}_2$  | decomposition      |
| 36. | $\underline{\text{3}} \text{ Mg} + \underline{\text{ }} \text{N}_2 \rightarrow \underline{\text{ }} \text{Mg}_3\text{N}_2$   | synthesis          |