

2 1161. Which equation illustrates conservation of mass? *Polymed*

- (1) $\text{H}_2 + \text{Cl}_2 \rightarrow \text{HCl}$ (3) $\text{H}_2 + \text{O}_2 \rightarrow \text{H}_2\text{O}$
 (2) $\text{H}_2 + \text{Cl}_2 \rightarrow 2\text{HCl}$ (4) $\text{H}_2 + \text{O}_2 \rightarrow 2\text{H}_2\text{O}$

3 4422. What is conserved during a chemical reaction?

- (1) energy, only (3) both matter and energy
 (2) matter, only (4) neither matter nor energy

4 5402. All chemical reactions have a conservation of

- (1) mass, only (3) charge and energy, only
 (2) mass and charge, only *everything* (4) mass, charge, and energy

2 13. When the equation

$\text{NH}_3 + 2\text{O}_2 \rightarrow \text{HNO}_3 + \text{H}_2\text{O}$
 is completely balanced using smallest whole numbers, the coefficient of O_2 would be

- (1) 1 (3) 3
 (2) 2 (4) 4

3 159. When the equation

$2\text{NH}_3 + 3\text{O}_2 \rightarrow 2\text{N}_2 + 6\text{H}_2\text{O}$
 is completely balanced using the smallest whole numbers, the coefficient of the O_2 will be

- (1) 1 (3) 3 *Had to double*
 (2) 2 (4) 4 *double*

4 244. When the equation

$4\text{Al(s)} + 3\text{O}_2\text{(g)} \rightarrow 2\text{Al}_2\text{O}_3\text{(s)}$
 is correctly balanced using the smallest whole numbers, the coefficient of Al(s) is

- (1) 1 (3) 3
 (2) 2 (4) 4

4 530. Given the unbalanced equation:

$6\text{Li} + 3\text{N}_2 \rightarrow 2\text{Li}_3\text{N}$
 When the equation is correctly balanced using smallest whole numbers, the coefficient of the lithium is

- (1) 1 (3) 3
 (2) 2 (4) 6

3 708. When the equation

$\text{Ca(ClO}_3)_2 \rightarrow \text{CaCl}_2 + 3\text{O}_2$
 is correctly balanced, the coefficient in front of the O_2 will be

- (1) 1 (3) 3
 (2) 2 (4) 4

2 866. When the equation

$\text{Fe}_2\text{O}_3\text{(s)} + 3\text{CO(g)} \rightarrow 2\text{Fe(l)} + 3\text{CO}_2\text{(g)}$
 is correctly balanced using the smallest whole numbers, the coefficient of Fe(l) is

- (1) 1 (3) 3
 (2) 2 (4) 4

1 1276. When the equation

$2\text{C}_2\text{H}_6 + 7\text{O}_2 \rightarrow 4\text{CO}_2 + 6\text{H}_2\text{O}$
 is correctly balanced, the coefficient in front of O_2 will be

- (1) 7 (3) 3
 (2) 10 (4) 4

1 1384. When the equation

$3\text{H}_2 + \text{N}_2 \rightarrow 2\text{NH}_3$
 is completely balanced using smallest whole numbers, the sum of all the coefficients will be

- (1) 6 (3) 3
 (2) 7 (4) 12

3 1606. Given the unbalanced equation:

$\text{Al}_2(\text{SO}_4)_3 + 3\text{Ca(OH)}_2 \rightarrow 2\text{Al(OH)}_3 + 3\text{CaSO}_4$
 What is the coefficient in front of the CaSO_4 when the equation is completely balanced with the smallest whole-number coefficients?

- (1) 1 (3) 3
 (2) 2 (4) 4

1 1657. When the equation

$2\text{H}_2\text{O}_2 \rightarrow 2\text{H}_2\text{O} + \text{O}_2$
 is completely balanced, the sum of all the coefficients will be

- (1) 5 (3) 3
 (2) 8 (4) 4

1 1844. Given the unbalanced equation:

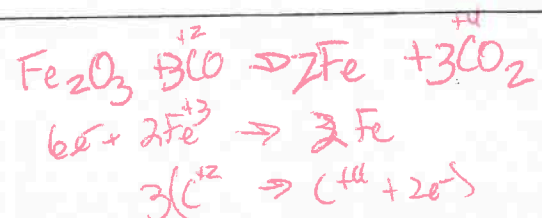
$\text{C}_3\text{H}_8\text{(g)} + 5\text{O}_2\text{(g)} \rightarrow 4\text{H}_2\text{O(g)} + 3\text{CO}_2\text{(g)}$
 When the equation is completely balanced using smallest whole numbers, the coefficient of O_2 is

- (1) 5 (3) 3
 (2) 2 (4) 10

1 2010. Given the unbalanced equation: *+6 H₂O*

$2\text{Al(OH)}_3 + 3\text{H}_2\text{SO}_4 \rightarrow \text{Al}_2(\text{SO}_4)_3 + \text{H}_2\text{O}$
 What is the coefficient in front of the H_2O when the equation is completely balanced using the smallest whole number coefficients?

- (1) 6 (3) 3
 (2) 2 (4) 4



2077. Given the unbalanced equation:
 $\underline{\quad} \text{Ca(OH)}_2 + \underline{\quad} (\text{NH}_4)_2\text{SO}_4 \rightarrow \underline{\quad} \text{CaSO}_4 + \underline{2} \text{NH}_3 + \underline{2} \text{H}_2\text{O}$
 What is the sum of the coefficients when the equation is completely balanced using the smallest whole number coefficients?

- (1) 5 (3) 9
 (2) 7 (4) 11

2186. Given the unbalanced equation:
 $\underline{\quad} \text{Al}_2(\text{SO}_4)_3 + \underline{3} \text{Ca(OH)}_2 \rightarrow \underline{2} \text{Al(OH)}_3 + \underline{3} \text{CaSO}_4$
 When the equation is completely balanced using the smallest whole number coefficients the sum of the coefficients is

- (1) 5 (3) 3
 (2) 9 (4) 4

2532. When the equation
 $\underline{\quad} \text{SiO}_2 + \underline{3} \text{C} \rightarrow \underline{\quad} \text{SiC} + \underline{2} \text{CO}$
 is correctly balanced using whole-number coefficients, the sum of all the coefficients is

- (1) 6 (3) 8
 (2) 7 (4) 9

2803. When the equation
 $\underline{\quad} \text{Al}_2(\text{SO}_4)_3 + \underline{3} \text{ZnCl}_2 \rightarrow \underline{2} \text{AlCl}_3 + \underline{3} \text{ZnSO}_4$
 is correctly balanced using the smallest whole number coefficients, the sum of the coefficients is

- (1) 9 (3) 5
 (2) 8 (4) 4

3072. When the equation
 $\underline{2} \text{Na(s)} + \underline{2} \text{H}_2\text{O(l)} \rightarrow \underline{2} \text{NaOH(aq)} + \underline{\quad} \text{H}_2\text{(g)}$
 is correctly balanced using smallest whole numbers, the coefficient of the water is

- (1) 1 (3) 3
 (2) 2 (4) 4

3185. Given the equation:
 $\underline{\quad} \text{FeCl}_2 + \underline{\quad} \text{Na}_2\text{CO}_3 \rightarrow \underline{\quad} \text{FeCO}_3 + \underline{2} \text{NaCl}$
 When the equation is correctly balanced using the smallest whole numbers, the coefficient of NaCl is

- (1) 6 (3) 3
 (2) 2 (4) 4

3515. Given the unbalanced equation:
 $\underline{3} \text{NaOH} + \text{H}_3\text{PO}_4 \rightarrow \text{Na}_3\text{PO}_4 + \text{H}_2\text{O}$
 When the equation is correctly balanced, the coefficient of H_2O will be

- (1) 1 (3) 3
 (2) 2 (4) 4

3964. Given the unbalanced equation:
 $\underline{2} \text{N}_2\text{(g)} + \underline{5} \text{O}_2\text{(g)} \rightarrow \underline{2} \text{N}_2\text{O}_5\text{(g)}$
 When the equation is balanced using smallest whole numbers, the coefficient of $\text{N}_2\text{(g)}$ will be

- (1) 1 (3) 5
 (2) 2 (4) 4

4755. Given the unbalanced equation:
 $\underline{\quad} \text{Mg(ClO}_3)_2\text{(s)} \rightarrow \underline{\quad} \text{MgCl}_2\text{(s)} + \underline{3} \text{O}_2\text{(g)}$
 What is the coefficient of O_2 when the equation is balanced correctly using the *smallest* whole number coefficients?

- (1) 1 (3) 3
 (2) 2 (4) 4

4942. If an equation is balanced properly, both sides of the equation must have the same number of

- (1) atoms (3) molecules
 (2) coefficients (4) moles of molecules

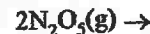
184. Given the balanced equation:



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

- (1) NaO (3) NaOH
 (2) Na₂O (4) Na₂OH

3346. Given the incomplete equation:



Which set of products completes and balances the incomplete equation?

- (1) $2\text{N}_2\text{(g)} + 3\text{H}_2\text{(g)}$ (3) $4\text{NO}_2\text{(g)} + \text{O}_2\text{(g)}$
 (2) $2\text{N}_2\text{(g)} + 2\text{O}_2\text{(g)}$ (4) $4\text{NO(g)} + \text{SO}_2\text{(g)}$

4517. $\text{N}_2\text{(g)} + 3\text{H}_2\text{(g)} \leftrightarrow 2\text{NH}_3\text{(g)}$

What type of reaction is shown above?

- (1) synthesis (3) single replacement
 (2) decomposition (4) double replacement

4518. $2\text{CO(g)} + \text{O}_2\text{(g)} \leftrightarrow 2\text{CO}_2\text{(g)}$

What type of reaction is shown above?

- (1) synthesis (3) single replacement
 (2) decomposition (4) double replacement

4519. $2\text{SO}_3\text{(g)} \leftrightarrow 2\text{SO}_2\text{(g)} + \text{O}_2\text{(g)}$

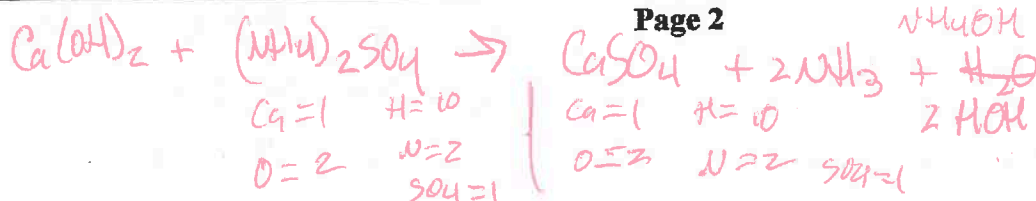
What type of reaction is shown above?

- (1) synthesis (3) single replacement
 (2) decomposition (4) double replacement

4521. $\text{Mg(s)} + 2\text{HCl(aq)} \leftrightarrow \text{MgCl}_2\text{(aq)} + \text{H}_2\text{(g)}$

What type of reaction is shown above?

- (1) synthesis (3) single replacement
 (2) decomposition (4) double replacement



- 2 4523. $2\text{NH}_3(\text{g}) \leftrightarrow \text{N}_2(\text{g}) + 3\text{H}_2(\text{g})$
What type of reaction is shown above?
(1) synthesis (3) single replacement
(2) decomposition (4) double replacement

- 3 4527. $\text{F}_2(\text{g}) + \text{CaBr}_2(\text{g}) = \text{CaF}_2(\text{g}) + \text{Br}_2(\text{g})$
What type of reaction is shown above?
(1) synthesis (3) single replacement
(2) decomposition (4) double replacement

- 3 4528. $\text{Cu}(\text{s}) + 2\text{HCl}(\text{aq}) \leftrightarrow \text{CuCl}_2(\text{aq}) + \text{H}_2(\text{g})$
What type of reaction is shown above?
(1) synthesis (3) single replacement
(2) decomposition (4) double replacement

- 3 5195. Which equation represents a double replacement reaction?
(1) $2\text{Na} + 2\text{H}_2\text{O} \rightarrow 2\text{NaOH} + \text{H}_2$
(2) $\text{CaCO}_3 \rightarrow \text{CaO} + \text{CO}_2$
(3) $\text{LiOH} + \text{HCl} \rightarrow \text{LiCl} + \text{H}_2\text{O}$
(4) $\text{CH}_4 + 2\text{O}_2 \rightarrow \text{CO}_2 + 2\text{H}_2\text{O}$

- 4 4516. $\text{Ba}(\text{NO}_3)_2(\text{aq}) + \text{Na}_2\text{SO}_4(\text{aq}) \rightarrow 2\text{NaNO}_3(\text{aq}) + \text{BaSO}_4(\text{s})$ What type of reaction is shown above?
(1) synthesis (3) single replacement
(2) decomposition (4) double replacement

4614. Given the unbalanced equation:
 $2\text{C}_2\text{H}_6 + 7\text{O}_2 \rightarrow 4\text{CO}_2 + 6\text{H}_2\text{O}$
Balance the equation using smallest whole number coefficients. *Needed to double* $5+6=14$

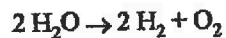
4617. Given the unbalanced equation:
 $2\text{Al}(\text{OH})_3 + 3\text{H}_2\text{SO}_4 \rightarrow \text{Al}_2(\text{SO}_4)_3 + 6\text{H}_2\text{O}$
Balance the equation using smallest whole number coefficients. $\leftarrow \text{HOH}$

4613. Given the unbalanced equation:
 $\text{Fe}_2\text{O}_3(\text{s}) + 3\text{CO}(\text{g}) \rightarrow 2\text{Fe}(\text{l}) + 3\text{CO}_2(\text{g})$
Balance the equation using smallest whole number coefficients.

4612. Given the unbalanced equation:
 $\text{Ca}(\text{ClO}_3)_2 \rightarrow \text{CaCl}_2 + 3\text{O}_2$
balance the equation using smallest whole number coefficients.

4609. Given the unbalanced equation:
 $\text{NH}_3 + 2\text{O}_2 \rightarrow \text{HNO}_3 + \text{H}_2\text{O}$
balance the equation using the smallest whole number coefficients.

Base your answers to questions 5362 through 5361 on the balanced chemical equation below.



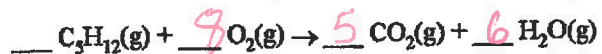
5362. How does the balanced chemical equation show the Law of Conservation of Mass?

↳ same # of each atom
on both sides

5361. What type of reaction does this equation represent?

decomp

5280. Base your answer to the following question on the unbalanced equation provided:



Balance the equation using the smallest whole-number coefficients.

10 + 6 = 16