Name:

Equations Review

2 1161. Which equation illustrates conservation of mass? Balanced

(1) $H_2 + Cl_2 \rightarrow HCl$
(2) $H_2 + Cl_2 \rightarrow 2HCl$
(3) $H_2 + O_2 \rightarrow H_2O$
(4) $H_2 + O_2 \rightarrow 2H_2O$

3 4422. What is conserved during a chemical reaction?

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

4 5402. All chemical reactions have a conservation of

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

everything

2 13. When the equation
$\_\_NH_3 + 2\_\_O_2 \rightarrow \_\_HNO_3 + \_\_H_2O$
is completely balanced using smallest whole numbers, the coefficient of O_2 would be

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

3 159. When the equation
$4\_\_NH_3 + 3\_\_O_2 \rightarrow 2\_\_N_2 + 6\_\_H_2O$
is completely balanced using the smallest whole numbers, the coefficient of the O_2 will be

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

had to double

4 244. When the equation
$4Al(s) + 3O_2(g) \rightarrow 2Al_2O_3(s)$
is correctly balanced using the smallest whole numbers, the coefficient of Al(s) is

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

4 530. Given the unbalanced equation:
$6Li + 3N_2 \rightarrow 2Li_3N$
When the equation is correctly balanced using smallest whole numbers, the coefficient of the lithium is

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

3 708. When the equation
$\_\_Ca(ClO_3)_2 \rightarrow \_\_CaCl_2 + 3O_2$
is correctly balanced, the coefficient in front of the O_2 will be

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

2 866. When the equation
$\_Fe_2O_3(s) + 3CO(g) \rightarrow 2Fe(l) + 3CO_2(g)$
is correctly balanced using the smallest whole numbers, the coefficient of Fe(*l*) is

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

1 1276. When the equation
$2C_2H_6 + 7O_2 \rightarrow 4CO_2 + 6H_2O$
is correctly balanced, the coefficient in front of O_2 will be

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

1 1384. When the equation
$3H_2 + \_\_N_2 \rightarrow 2NH_3$
is completely balanced using smallest whole numbers, the sum of all the coefficients will be

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

3 1606. Given the unbalanced equation:
$\_\_Al_2(SO_4)_3 + 3Ca(OH)_2 \rightarrow 2Al(OH)_3 + 3CaSO_4$
What is the coefficient in front of the $CaSO_4$ when the equation is completely balanced with the smallest whole-number coefficients?

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

1 1657. When the equation
$2H_2O_2 \rightarrow 2H_2O + \_\_O_2$
is completely balanced, the sum of all the coefficients will be

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

1 1844. Given the unbalanced equation:
$\_\_C_3H_8(g) + 5O_2(g) \rightarrow 4H_2O(g) + 3CO_2(g)$
When the equation is completely balanced using smallest whole numbers, the coefficient of O_2 is

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

1 2010. Given the unbalanced equation:
$2Al(OH)_3 + 3H_2SO_4 \rightarrow Al_2(SO_4)_3 + H_2O$
What is the coefficient in front of the H_2O when the equation is completely balanced using the smallest whole number coefficients?

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

$Fe_2O_3 + 3CO \rightarrow 2Fe + 3CO_2$

$6e^- + 2Fe^{+3} \rightarrow 2Fe$

$3(C^{+2} \rightarrow C^{+4} + 2e^-)$

2 2077. Given the unbalanced equation:
__$Ca(OH)_2$ + __$(NH_4)_2SO_4$ → __$CaSO_4$ + 2 NH_3 + 2 H_2O
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

2 2186. Given the unbalanced equation:
__$Al_2(SO_4)_3$ + 3 $Ca(OH)_2$ → 2 $Al(OH)_3$ + 3 $CaSO_4$
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

2 2532. When the equation
__SiO_2 + 3 C → __SiC + 2 CO
is correctly balanced using whole-number coefficients, the sum of all the coefficients is
(1) 6 (3) 8
(2) 7 (4) 9

1 2803. When the equation
__$Al_2(SO_4)_3$ + 3 $ZnCl_2$ → 2 $AlCl_3$ + 3 $ZnSO_4$
is correctly balanced using the smallest whole number coefficients, the sum of the coefficients is
(1) 9 (3) 5
(2) 8 (4) 4

2 3072. When the equation HOH
2 Na(s) + 2 $H_2O(l)$ → 2 NaOH(aq) + __H_2(g)
is correctly balanced using smallest whole numbers, the coefficient of the water is
(1) 1 (3) 3
(2) 2 (4) 4

2 3185. Given the equation:
__$FeCl_2$ + __Na_2CO_3 → __$FeCO_3$ + 2 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

3 3515. Given the unbalanced equation: 3 HOH
3 NaOH + H_3PO_4 → Na_3PO_4 + H_2O
When the equation is correctly balanced, the coefficient of H_2O will be
(1) 1 (3) 3
(2) 2 (4) 4

2 3964. Given the unbalanced equation:
2 N_2(g) + 5 O_2(g) → 2 N_2O_5(g)
When the equation is balanced using smallest whole numbers, the coefficient of N_2(g) will be
(1) 1 (3) 5
(2) 2 (4) 4

3 4755. Given the unbalanced equation:
__$Mg(ClO_3)_2$(s) → __$MgCl_2$(s) + 3 O_2(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

1 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

3 184. Given the balanced equation:
$2Na + 2H_2O \rightarrow 2X + H_2$
What is the correct formula for the product represented by the letter *X*?
(1) NaO (3) NaOH
(2) Na_2O (4) Na_2OH

3 3346. Given the incomplete equation:
$2N_2O_5(g) \rightarrow$
Which set of products completes and balances the incomplete equation?
(1) $2N_2(g) + 3H_2(g)$ (3) $4NO_2(g) + O_2(g)$
(2) $2N_2(g) + 2O_2(g)$ (4) $4NO(g) + SO_2(g)$

1 4517. $N_2(g) + 3H_2(g) \leftrightarrow 2NH_3(g)$
What type of reaction is shown above?
(1) synthesis (3) single replacement
(2) decomposition (4) double replacement

2 4518. $2CO(g) + O_2(g) \leftrightarrow 2CO_2(g)$
What type of reaction is shown above?
(1) synthesis (3) single replacement
(2) decomposition (4) double replacement

2 4519. $2SO_3(g) \leftrightarrow 2SO_2(g) + O_2(g)$
What type of reaction is shown above?
(1) synthesis (3) single replacement
(2) decomposition (4) double replacement

3 4521. $Mg(s) + 2HCl(aq) \leftrightarrow MgCl_2(aq) + H_2(g)$
What type of reaction is shown above?
(1) synthesis (3) single replacement
(2) decomposition (4) double replacement

$Ca(OH)_2 + (NH_4)_2SO_4 \rightarrow CaSO_4 + 2NH_3 + 2HOH$ (NH4OH)
Ca=1 H=10 O=2 N=2 SO4=1 | Ca=1 H=10 O=2 N=2 SO4=1

2 4523. $2NH_3(g) \leftrightarrow N_2(g) + 3H_2(g)$
What type of reaction is shown above?

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

3 4527. $F_2(g) + CaBr_2(g) = CaF_2(g) + Br_2(g)$
What type of reaction is shown above?

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

3 4528. $Cu(s) + 2HCl(aq) \leftrightarrow CuCl_2(aq) + H_2(g)$
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) $2\,Na + 2H_2O \rightarrow 2NaOH + H_2$
(2) $CaCO_3 \rightarrow CaO + CO_2$
(3) $LiOH + HCl \rightarrow LiCl + H_2O$
(4) $CH_4 + 2O_2 \rightarrow CO_2 + 2H_2O$

4 4516. $Ba(NO_3)_2(aq) + Na_2SO_4(aq) \rightarrow 2NaNO_3(aq) + BaSO_4(s)$ What type of reaction is shown above?

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

4614. Given the unbalanced equation:
$2\,C_2H_6 + 7\,O_2 \rightarrow 4\,CO_2 + 6\,H_2O$
Balance the equation using smallest whole number coefficients. Needed to double

2+6=14

4617. Given the unbalanced equation:
$2\,Al(OH)_3 + 3\,H_2SO_4 \rightarrow \_\_Al_2(SO_4)_3 + 6\,H_2O$
Balance the equation using smallest whole number coefficients.

K HOH

4613. Given the unbalanced equation:
$\_\_Fe_2O_3(s) + 3\,CO(g) \rightarrow 2\,Fe(l) + 3\,CO_2(g)$
Balance the equation using smallest whole number coefficients.

4612. Given the unbalanced equation:
$\_\_Ca(ClO_3)_2 \rightarrow \_\_CaCl_2 + 3\,O_2$
balance the equation using smallest whole number coefficients.

4609. Given the unbalanced equation:

$\_\_NH_3 + 2\,O_2 \rightarrow \_\_HNO_3 + \_\_H_2O$
balance the equation using the smallest whole number coefficients.

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

$$2\,H_2O \rightarrow 2\,H_2 + O_2$$

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:

$$\_\_\ C_5H_{12}(g) + \_9\_\ O_2(g) \rightarrow \_5\_\ CO_2(g) + \_6\_\ H_2O(g)$$

10 + 6 = 16

Balance the equation using the smallest whole-number coefficients.