Balancing Equations (2)

- (1) Which equation shows a conservation of mass?
 - A) Na + Cl₂ \rightarrow NaCl
- C) $H_2O \rightarrow H_2 + O_2$
- B) $Al + Br_2 \rightarrow AlBr_3$
- D) $PCl_5 \rightarrow PCl_3 + Cl_2$
- ____(2) Given the balanced equation with an unknown compound represented by *X*:

$$C_6H_{12}O_6(aq) \xrightarrow{\text{enzyme}} 2X + 2CO_2(g)$$

Which compound is represented by X?

- A) CH₃OH(aq)
- B) $CH_2(OH)_4(aq)$
- C) CH₃CH₂OH(aq)
- D) CH₂OHCH₂OH(aq)
- ____(3) Given the unbalanced equation:

$$\underline{Mg(ClO_3)_2(s)} \rightarrow \underline{MgCl_2(s)} + \underline{O_2(g)}$$

What is the coefficient of O₂ when the equation is balanced correctly using the *smallest* whole number coefficients?

A) 1

C) 3

B) 2

- D) 4
- ____(4) Which equation is correctly balanced?
 - A) $H_2 + O_2 \rightarrow H_2O$
 - B) $Ca + Cl_2 \rightarrow CaCl$
 - C) $2 H_2 + O_2 \rightarrow 2 H_2O$
 - D) $Ca + C1_2 \rightarrow Ca_2C1$
- ____(5) Given the unbalanced equation:

$$_Al(s) + _O_2(g) \rightarrow _Al_2O_3(s)$$

When this equation is correctly balanced using smallest whole numbers, what is the coefficient of $O_2(g)$?

A) 6

C) 3

B) 2

- D) 4
- ____(6) Given the unbalanced equation:

$$Na + H_2O \rightarrow H_2 + NaOH$$

When the equation is correctly balanced using the smallest whole-number coefficients, the coefficient for H₂O is

A) 1

C) 3

B) 2

D) 4

____(7) Given the unbalanced equation:

$$_CaSO_4 + _AlCl_3 \rightarrow Al_2(SO_4)_3 + _CaCl_2$$

What is the coefficient of Al₂(SO₄)₃ when the equation is completely balanced using the smallest whole-number coefficients?

A) 1

C) 3

B) 2

D) 4

____(8) When the equation

$$\underline{\text{Cu}} + \underline{\text{H}}_2\text{SO}_4 \rightarrow \underline{\text{CuSO}}_4 + \underline{\text{H}}_2\text{O} + \underline{\text{SO}}_2$$

is correctly balanced, what is the coefficient of CuSO₄?

A) 1

C)

B) 2

D) 4

____(9) When the equation

$$_Al_2(SO_4)_3 + _ZnCl_2 \rightarrow _AlCl_3 + _ZnSO_4$$

is correctly balanced using the smallest whole number coefficients, the sum of the coefficients is

A) 9

C) 5

B) 8

D) 4

____(10) When the equation

$$_SiO_2 + _C \rightarrow _SiC + _CO$$

is correctly balanced using whole-number coefficients, the sum of all the coefficients is

A) 6

C) 8

B) 7

D) 9

__(11) Given the unbalanced equation:

$$\underline{\text{Ca}(OH)}_2 + \underline{\text{(NH_4)}}_2 SO_4 \rightarrow \underline{\text{CaSO}}_4 + \underline{\text{NH}}_3 + \underline{\text{H}}_2 O$$

What is the sum of the coefficients when the equation is completely balanced using the smallest whole number coefficients?

A) 5

C) 9

B) 7

D) 11

____(12) When the equation

$$_Ca(ClO_3)_2 \rightarrow _CaCl_2 + _O_2$$

is correctly balanced, the coefficient in front of the $\boldsymbol{\mathrm{O}}_2$ will be

A) 1

C) 3

B) 2

D) 4

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____(13) Given the incomplete equation:

$$2~{\rm N_2O_5(g)} \rightarrow$$

Which set of products completes and balances the incomplete equation?

- A) $2 N_2(g) + 3 H_2(g)$
- B) $2 N_2(g) + 2 O_2(g)$
- C) $4 \text{ NO}_2(g) + \text{O}_2(g)$
- D) $4 \text{ NO(g)} + \text{SO}_2(g)$