NAME _____ DATE _____ CLASS _____

QUIZ

Quantifying Reactants and Products

1. Use what you know about balancing equations to solve the problem.

A specialty food store received orders for 725 fruit baskets during the 7-day period leading up to a major holiday. According to the fruit basket recipe shown, how many strawberries will the specialty store need to fulfill all 725 orders?

1 fruit basket = 4 oranges (O) + 3 apples (A) + 2 pears (P) + 6 strawberries (S)

1 fruit basket = 4O + 3A + 2P + 6S $\rightarrow$ $O_4A_3P_2S_6$

A. 1450 strawberries

B. 2175 strawberries

C. 2900 strawberries

D. 4350 strawberries

2. This chemical reaction follows the law of conservation of mass.

$Mg(OH)_2(aq) + 2HCl(aq) \rightarrow 2H_2O(l) + MgCl_2(aq)$

Which of the statements are **true**? Select all that apply.

A. In this reaction, atoms rearrange to form new molecules.

B. Atoms are created and destroyed in this chemical reaction.

C. Atoms are neither created nor destroyed in this chemical reaction.

D. In this reaction, atoms do not rearrange to form new molecules.

E. In this reaction, the number of atoms of the reactants is the same as the number of atoms of the products.

F. In this reaction, the number of atoms of the reactants is different than the number of atoms of the products.

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3. Observe the reaction.

$N_2(g) + 3H_2(g) \rightarrow 2NH_3(g)$

In this reaction, _____ mole(s) of H_2 is/are proportional with _____ moles of NH_3.

Which of the following options completes the sentence?

A. 1and 5

B. 3 and 2

C. 5 and 5

D. 6 and 6

Read the passage and use the equation to answer the next two questions.

A group of botanists is researching photosynthesis reactions in a variety of plants. Plants convert carbon dioxide and water into glucose ($C_6H_{12}O_6$) according to the given reaction:

$$6CO_2(g) + 6H_2O(l) \xrightarrow[\text{sunlight}]{} 6O_2(g) + C_6H_{12}O_6(aq)$$

4. The photosynthesis equation has _____ molecules of reactants and _____ molecules of product.

Which of the following options completes the sentence?

A. 6 and 6

B. 12 and 7

C. 18 and 18

D. 24 and 36

5. Find the reactant and product molar masses for this photosynthesis reaction reported to one place after the decimal point.

A. The reactant mass is 186.0 grams, and the product mass is 186.0 grams.

B. The reactant mass is 186.0 grams, and the product mass is 372.0 grams.

C. The reactant mass is 372.0 grams, and the product mass is 186.0 grams.

D. The reactant mass is 372.0 grams, and the product mass is 372.0 grams.