Gas Stoichiometry **Name_____**

____1) Given the reaction:

$$C_3H_8(g) + 5\ O_2(g) \rightarrow 3\ CO_2(g) + 4\ H_2O(g)$$

At STP, what is the number of liters of CO_2 produced when 5.0 liters of $C_3H_8(g)$ burns completely?

(A) 1.0 L (C) 3.0 L
(B) 5.0 L (D) 15 L

____2) Given the reaction:

$$2\ H_2(g) + O_2(g) \rightarrow 2\ H_2O(l)$$

What is the total number of liters of $O_2(g)$ at STP needed to produce 6.0×10^{23} molecules of $H_2O(l)$?

(A) 11.2 L (C) 33.6 L
(B) 22.4 L (D) 44.8 L

____3) Given the reaction:

$$2\ C_8H_{18}(g) + 25\ O_2(g) \rightarrow 16\ CO_2(g) + 18\ H_2O(g)$$

What volume of $C_8H_{18}(g)$ will completely react to produce exactly 36 liters of $H_2O(g)$?

(A) 27 L (C) 36 L
(B) 2.0 L (D) 4.0 L

____4) Given the balanced equation:

$$C_3H_8(g) + 5\ O_2(g) \rightarrow 3\ CO_2(g) + 4\ H_2O(g)$$

What is the total number of liters of $CO_2(g)$ produced when 20.0 liters of $O_2(g)$ are completely consumed?

(A) 12.0 L (C) 3.00 L
(B) 22.4 L (D) 5.00 L

____5) Given the balanced equation:

$$Mg(s) + 2\ HCl(aq) \rightarrow MgCl_2(aq) + H_2(g)$$

At STP, what is the total number of liters of hydrogen gas produced when 3.00 moles of hydrochloric acid solution is completely consumed?

(A) 11.2 L (C) 33.6 L
(B) 22.4 L (D) 44.8 L

____6) Given the reaction:

$$2\ CH_3OH(l) + 3O_2(g) \rightarrow 2\ CO_2(g) + 4\ H_2O(g)$$

How many liters of $O_2(g)$ are needed to produce exactly 200 liters of $CO_2(g)$?

(A) 100 L (C) 300 L
(B) 200 L (D) 400 L

____7) Given the reaction:

$$2\ C_2H_6(g) + 7\ O_2(g) \rightarrow 4\ CO_2(g) + 6\ H_2O(g)$$

At STP, what is the total volume of $CO_2(g)$ formed when 6.0 liters (L) of $C_2H_6(g)$ are completely oxidized?

(A) 24 L (C) 6.0 L
(B) 12 L (D) 4.0 L

____8) Given the reaction

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

How many liters of ammonia, measured at STP, are produced when 28.0 grams of nitrogen is completely consumed?

(A) 5.60 (C) 22.4
(B) 11.2 (D) 44.8

____9) Given the reaction:

$$Mg + H_2SO_4 \rightarrow MgSO_4 + H_2$$

How many grams of H_2SO_4 are needed to produce exactly 11.2 liters of H_2, measured at STP?

(A) 24.5 (C) 98.0
(B) 49.0 (D) 196

____10) Magnesium was reacted with an excess of dilute hydrochloric acid and the hydrogen gas produced collected in a eudiometer. The volume of hydrogen in the eudiometer was corrected to conditions of STP. If 94.1 milliliters of hydrogen was produced, how much magnesium reacted in this experiment?

(A) 0.01 g (C) 0.05 g
(B) 0.10 g (D) 0.50 g

Answer Key

1) D

2) A

3) D

4) A

5) C

6) C

7) B

8) D

9) B

10) B