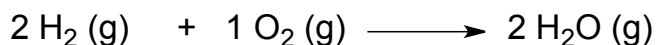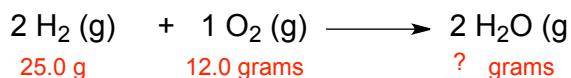CONCEPT: LAW OF CONSERVATION OF MASS

● In 1789, French chemist Antoine Lavoisier, another Father of Chemistry, originated the **Law of Conservation of Mass**.

  □ The Law states that, "In a chemical reaction, no matter is created or destroyed, but instead changes form."

  □ In a chemical equation, compounds before the arrow are _____ and those after are _____.

$$2\ H_2\ (g)\quad +\quad 1\ O_2\ (g)\ \longrightarrow\ 2\ H_2O\ (g)$$

  □ According to Lavoisier, _____ reactants are converted to products with nothing lost.

  □ Total mass of reactants _____ the total mass of products.

EXAMPLE: How many grams of water vapor will form if 25.0 grams of hydrogen gas mixes with 12.0 grams of oxygen gas?

$$2\ H_2\ (g)\quad +\quad 1\ O_2\ (g)\ \longrightarrow\ 2\ H_2O\ (g$$

25.0 g   12.0 grams   _?_ grams

PRACTICE: Following the Law of Conservation of Mass, predict the minimum amount of nitrogen that will react with 50.0 grams of hydrogen to produce 92.5 grams of ammonia.

$$Nitrogen\quad +\quad Hydrogen\ \longrightarrow\ Ammonia$$

PRACTICE: Predict the amount of oxygen gas that will remain after the reaction of 112.6 grams of calcium with 24.0 grams of oxygen.

$$Calcium\quad +\quad Oxygen\ \longrightarrow\ Calcium\ Oxide\quad +\quad Oxygen$$

112.6 g   24.0 grams   125.6 g   _?_ grams