Law of Conservation of Mass
Reactants and Products

(a) 64 grams of salt water are left outside. What is the mass of the water that evaporated if there is 41 grams of salt leftover?

(b) 33 grams of calcium and 22 grams of oxygen react to form _____ grams of calcium oxide.

(c) 132 grams of copper and 51 grams of sulfur react to form _____ grams of copper sulfide.

(d) 4.6 grams of hydrogen reacts with 71.1 grams of nitrogen to form _____ grams of ammonia.

(e) 245 grams of sodium reacts with 238 grams of iodine to form _____ grams of sodium iodide.

(f) 250 grams of zinc hydroxide decomposes into 229 grams of zinc oxide and _____ grams of water.

(g) 41.2 grams of sulfuric acid decomposes into 29.6 grams of water and _____ grams of sulfur trioxide.

(h) 182 grams of carbonic acid decomposes into 111 grams of water and _____ grams of carbon dioxide.

(i) 25.8 grams of aluminum oxide decomposes into 12.5 grams of aluminum and _____ grams of oxygen.

(j) 170 grams of silver oxide decomposes into 148 grams of silver and _____ grams of oxygen.

(k) Explain the Law of Conservation of Mass in 10 words or less.

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Law of Conservation of Mass
Balanced & Unbalanced Equations

(You'll need a Periodic Table for the next section.)

Zinc carbonate ($ZnCO_3$) decomposes into zinc (Zn) and carbon dioxide (CO_2).

Find the weight of:	Zn	C	O	O_2	O_3
	65.4	12	16	32	48

Use the weights from above to fill out the table according to the equation.

Zn	C	O_3	→	Zn	+	C	O_2
65.4	12	48	→	65.4	+	12	16
125.4			→	65.4	+	28	
125.4			→	93.4			

(l) Compare the mass of the reactant ($ZnCO_3$) to the combined mass of the products ($Zn+CO_2$). What do you notice above the mass on the left and the mass on the right? How does this help you determine if the equations are balanced or not?

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Nitrogen gas (N_2) reacts with hydrogen gas (H_2) to form ammonia (NH_3).

Find the weight of:	N	N_2	H	H_2	H_3

Use the weights from above to fill out the table according to the equation.

N_2	+	H_2	→	N	H_3
	+		→		
			→		

(m) Compare the combined mass of the reactants (N_2 and H_2) to the mass of the product (NH_3). What do you notice above the mass on the left and the mass on the right? How does this help you determine if the equations are balanced or not?

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The balanced equation is: $N_2 + 3 H_2 \rightarrow 2 NH_3$

Find the weight of:	2 N	N_2	H	3 H_2	2 H_3

Use the weights from above to fill out the table according to the equation.

N_2	+	3 H_2	→	2 N	2 H_3
	+		→		
			→		

(n) Compare the combined mass of the reactants (N_2 and 3 H_2) to the mass of the product (2 NH_3). What do you notice above the mass on the left and the mass on the right? How does this help you determine if the equations are balanced or not?

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