CHEMICAL REACTIONS:

The breaking of at least one existing chemical bond in the reagents and/or the formation of at least one new chemical bond in the products.

STOICHIOMETRY:

Balanced chemical reactions atoms are conserved: none destroyed, created, or transmuted.

Give a ratio of reagents used to products formed

STOICHIOMETRY:

Balancing chemical equations There is no "right way". As long as the equation becomes balanced.

Give a ***ratio*** of reagents used to products formed

Tips/tricks:

- Balance elements last
- If an element is in two different substances on the same side of the equation, save it for last
- Fractions vs. integers
- Molecular ions

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- Balance elements last

$$Fe_2O_3 + C \rightarrow FeO + CO$$

Tips/tricks:

- If an element is in two different compounds on the same side of the equation, save it for last

$$C_4H_{10} + O_2 \rightarrow CO_2 + H_2O$$

Tips/tricks:

- Fractions vs. integers

$$C_4H_{10} + O_2 \rightarrow CO_2 + H_2O$$

Tips/tricks:

- Molecular ions

$Ca_3(PO_4)_2 + H_2SO_4 \rightarrow CaSO_4 + H_3PO_4$

STOICHIOMETRY:

Working with balanced equations:

0. Balance the equation
1. Convert all input data into moles
2. Determine the limiting reagent
3. Determine the number of moles of product formed
4. Convert the result to mass

STOICHIOMETRY:

Working with balanced equations:

Given: $Fe_2O_3 + C \rightarrow Fe + CO_2$

If one metric tonne (1.0×10^3 kg) of iron(III) oxide is combined with 110 kg of coke (C), determine the mass of iron metal that can be formed.

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$$2\ Fe_2O_3 + 3\ C \rightarrow 4\ Fe + 3\ CO_2\ .$$

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3. Determine the number of moles of product formed

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