

Chemical Reactions

Evidence of Chemical Reactions

1. color change
2. odor change
3. state change
4. energy change
5. diagnostic tests.

Endothermic Reaction - those in which the heat is taken in by the system and the temperature of the surroundings drops.

Exothermic Reaction - those in which heat is given out by the system and the temperature of the surroundings increases.

Main principles of the **collision-reaction theory**:

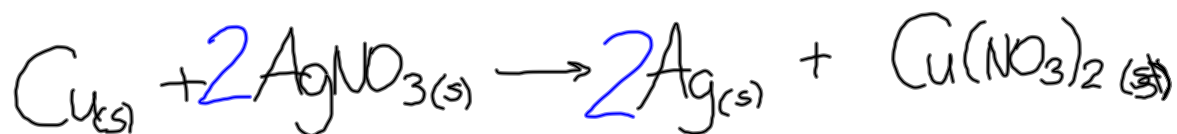
1. all chemical reactions involve collisions between atoms, ions or molecules
2. a certain amount of energy is required for a reaction to occur
3. a certain orientation of particles is required

Tips for Balancing Equations:

- **Don't balance atoms present in more than two substances until the end**
- **Balance polyatomic ions as 'one'**
- **If a fractional coefficient is needed, multiply all coefficients by denominator**

Balancing Chemical Equations

Copper and silver nitrate react to produce silver and copper (II) nitrate.

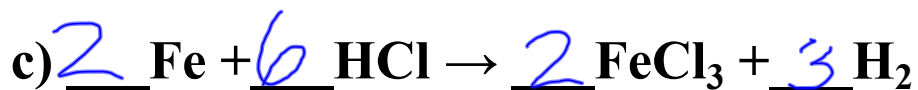


REACTANTS

PRODUCTS

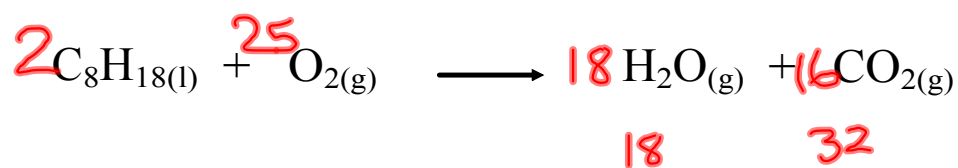
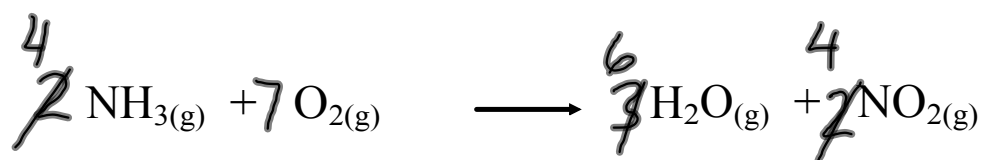
Aluminum reacts with sulfuric acid to produce hydrogen and aluminum sulfate.

Balancing Equations



Worksheet

Balancing Chemical Equations



50

$12\frac{1}{2}$

$\frac{25}{2}$

$\frac{2}{5}$ $\frac{5}{2}$

$\frac{5}{1}$ $\frac{1}{4}$