Balancing Chemical Equations

Balance the chemical reaction:

$$___\ FeS + ___\ O_2 \rightarrow ___\ Fe_2O_3 + ___\ SO_2$$

Balancing Chemical Equations

Balance the chemical reaction:

$$___\ FeS + ___\ O_2 \rightarrow ___\ Fe_2O_3 + ___\ SO_2$$

Step 1. Write out coefficients

$$a\ FeS + b\ O_2 \rightarrow x\ Fe_2O_3 + y\ SO_2$$

Step 2. Construct the atom equations:

Fe: $a = 2x$

S: $a = y$

O: $2b = 3x + 2y$

Balancing Chemical Equations

Step 2. Make an initial guess and solve for coefficients:

Fe: a = 2x Try a = 2, then x = 1 and y = 1

S: a = y

O: 2b = 3x + 2y

Balancing Chemical Equations

Step 2. Make an initial guess and solve for coefficients:

Fe: a = 2x Try a = 2, then x = 1 and y = 2

S: a = y

O: 2b = 3x + 2y Then b = 7/2. We could double them.

Write the balanced reaction:

$$4\ FeS + 7\ O_2 \rightarrow 2\ Fe_2O_3 + 4\ SO_2$$