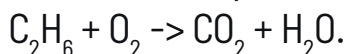


## Top Tips for Balancing:

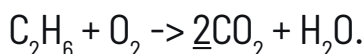
- Make a list of how many of each kind of atom you have on either side of the equation - the goal is to have the same number of each kind of atom on both sides.
- Coefficients (big numbers) go in front of the formula and multiply the whole thing - these are what we use to balance. (e.g.,  $2\text{H}_2\text{O}$  means you have 4 Hydrogen atoms and 2 Oxygen atoms).
  - Subscripts (small numbers) are part of the chemical formulae and cannot be changed.
- Balance atoms which appear more than once on either side of the equation last to avoid rebalancing.

## Example:

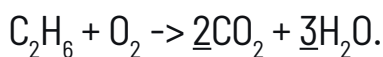
Balance the equation for the combustion of ethane:



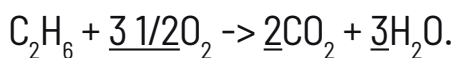
O appears more than once on one side of the equation, so we should balance either C or H first. We have 2 Cs on the LHS and 1 on the RHS, so to balance our Cs we must multiply the  $\text{CO}_2$  on the RHS by 2:



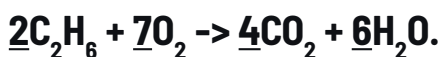
We have 6 Hs on the LHS and 2 Hs on the RHS. We balance by multiplying the RHS  $\text{H}_2\text{O}$  by 3 ( $3 \times 2 = 6$ ):



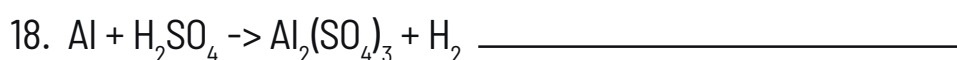
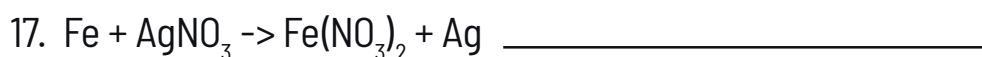
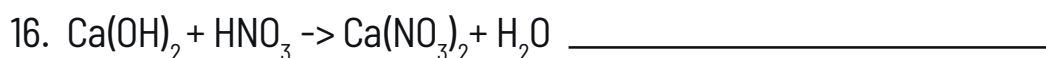
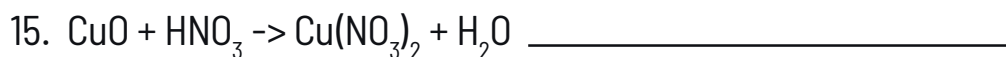
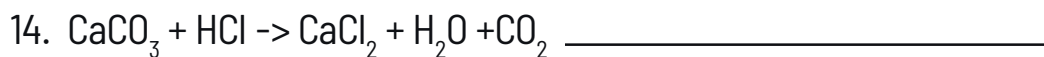
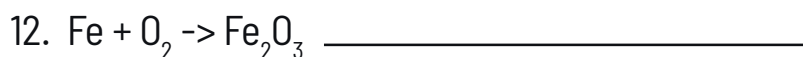
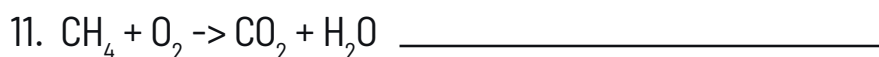
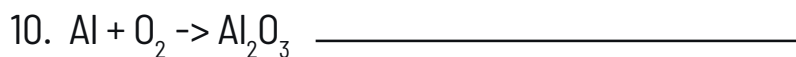
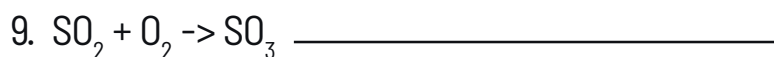
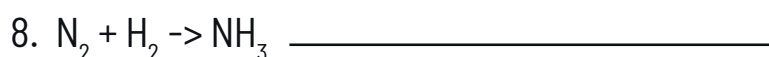
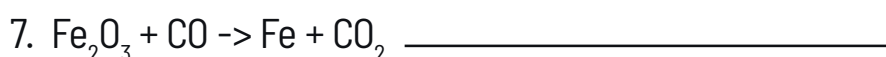
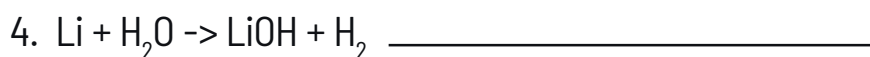
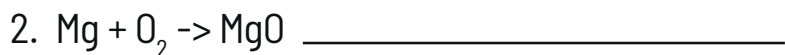
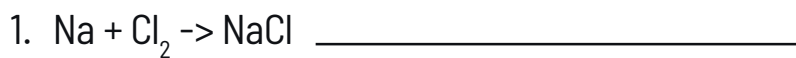
Now we can balance our O. We have 2 Os on the LHS and 7 on the RHS, we can balance this by multiplying the LHS  $\text{O}_2$  by  $3 \frac{1}{2}$ :



We can't leave fractions in our final answer, so we multiply the entire equation by 2 to get rid of the denominator (bottom number of our fraction):



## Balance the following:



## Answer Key:

