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Chemical Catastrophe (18pts)

Sona ma'am is running an experiment involving a bunch of chemical reactions. She refers to an extensive list of chemical equations prepared by her interns. To conduct the experiment however, she needs to know how many molecules (or moles) of reactants there are but of course her interns did not balance the reactions in her list. Since this is a very large list, she needs your help in balancing every equation and figuring out how many molecules of reactants there are.

Example



In the first equation we have **2N** and **2H** atoms on the left; and **1N** and **3H** atoms on the right. We will have to multiply the **H₂** molecule by the factor **3** and the **NH₃** molecule by the factor **2** in order to balance to **N₂ + 3H₂ → 2NH₃** so that there are **4N** and **6H** atoms on both the left and right side, therefore we have **2** molecules of products.

In the second equation we already have **2H**, **1F**, **1K** and **1O** atom on each side, therefore the reaction is balanced and we have **1** molecule of products.

In total we have **3** (**2 + 1**) molecules of products, therefore the answer is **3**.

Additional Info

1. The **+** symbol separates molecules while the **→** symbol separates reactants from products
2. For simplification, all elements will be a single capital letter symbol.
3. These equations in your input might not exist in the real world but assume they do.
4. The integer on the left that does not follow any element (letter) is the number of molecules and the integer on the right that immediately follows an element (letter) is the number of atoms of that type in one molecule

Resources

[Balancing Chemical Equations - Albertio](#)

[Chemical Equations - BYJU's](#)