

Stoichiometry Notes

- Using the ratio of coefficients in a balanced chemical equation to determine an unknown value.
- can be done using dimensional analysis (one long multiplication) or broken into parts.

* multiply #'s on top + divide by #'s on bottom

4 steps to dimensional analysis:

1. write out GIVEN value with unit (g, mol, volume, atom, molecule)
2. Convert the given value using 1 mol/unit of given (mm, atom, molecule)
3. Multiply by molar ratio (coefficients in equation)
4. Convert to obtain desired unit (g, molecule, mol, atom) / 1 mol

There is a maximum of 4 steps to follow when you are solving for the problem. Below is the list of steps to follow for each type of question:

Mass (or molecules or atoms) to **mass** (or molecules or atoms) question = all 4 steps

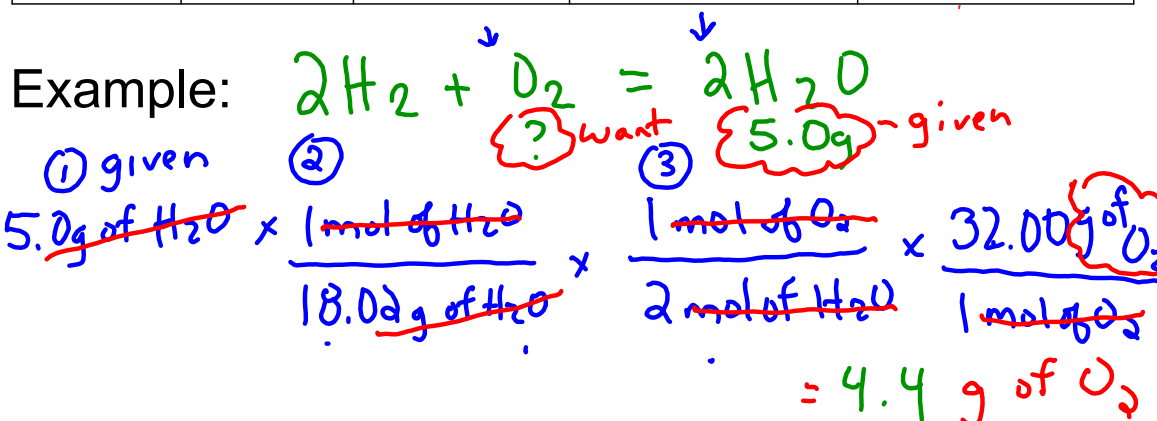
Mass (or molecules or atoms) to **moles** question = steps 1, 2 and 3

Moles to **mass** (or molecules or atoms) question = steps 1, 3 and 4

Moles to **Moles** = steps 1 and 3

Steps

	Given Step 1	Molar mass (molecule or atom) Step 2	Ratio Step 3	Molar mass (molecule or atom) Step 4
Purpose	↓	to eliminate mass and bring in moles of given	to bring in mol wanted and eliminate mol of given (Use mole value in formula)	to eliminate mole and to bring in mass
How to write	# given in question	$\frac{1 \text{ mol of given}}{\text{mm of given}}$	$\frac{\text{mol of wanted}}{\text{mol of given}}$	$\frac{\text{mm of wanted}}{1 \text{ mol of wanted}}$



- remember Molecules and atoms are = 6.02×10^{23}
- If molecule or atom word is in question. Pretend it's like a mass to know which steps to use.
- Sig figs use #'s in question or molar mass
- Given and ratio steps (1 and 3) always occur
- The given and final answer unit will always be in: g, mol, molecules or atoms

