Mole Notes

What is a mole?

- _____
- _____

The difference between atoms, molecules, and compounds:

atoms	Ca, Na, P	
molecules	O_2 , CO_2	
compounds	CO_2, NaCl	

A dozen donuts, bagels or eggs = A cup of sugar, rice or milk=

A mole of Cu, Zn, $CaCl_2$ or O_2 =

Why the same number? _____

- Does the dozen donuts weigh the same as the dozen bagels?
- Does 1 cup of sugar weigh the same as 1 cup of rice?
- Does 1 mole Cu weigh the same as 1 mole of Zn?

_____
_____
_____

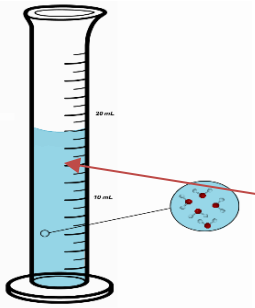
Molar Mass

- mass of one mole of a substance measured in g/mol
- molar mass of compounds - add up molar masses of each individual atoms. Use atomic mass on PT

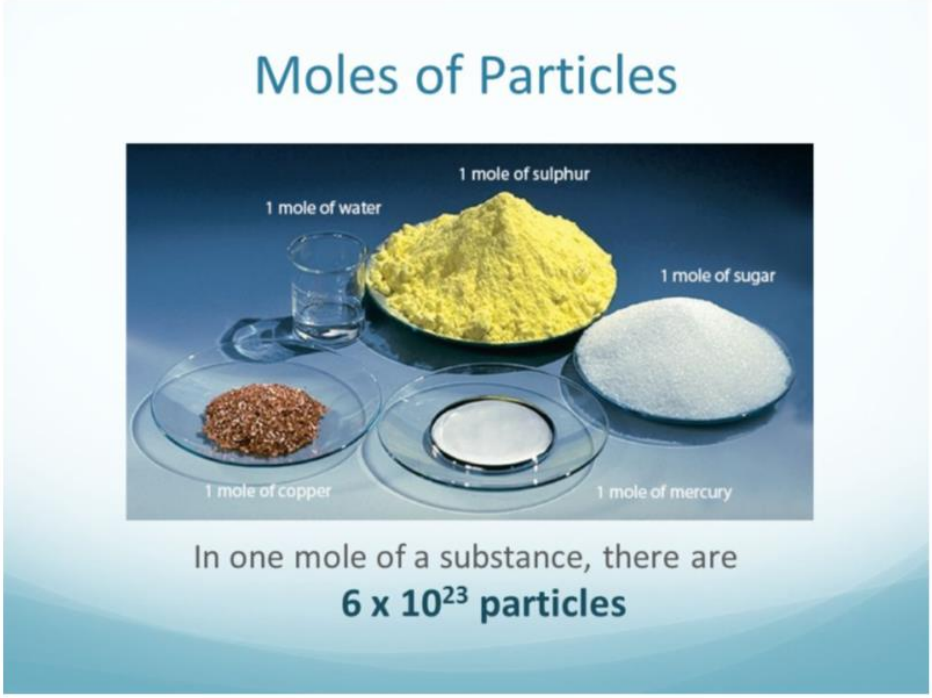
C	KF	$CaCO_3$

Find the molar mass of the following:

NaCl	PCl_3	$Mg(OH)_2$	$Ca_3(PO_4)_2$	H_2O



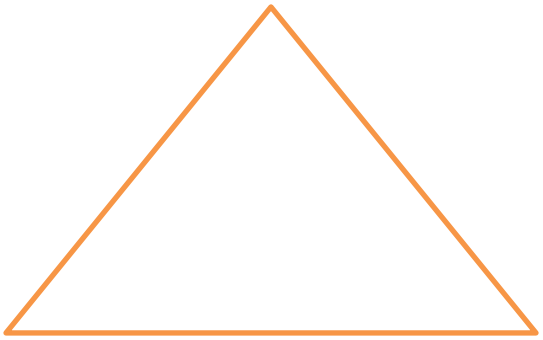
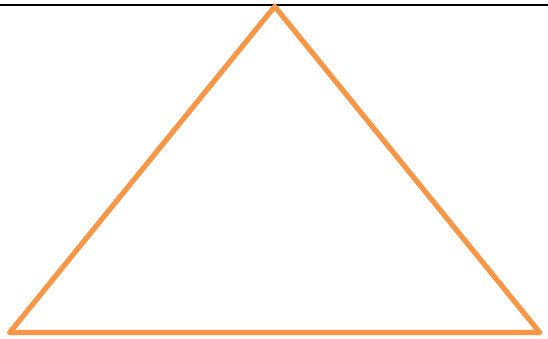
Molar Mass of water = 18.02 g/mol
1 mol of H_2O = 6.02×10^{23} molecules



How can all the above be equal to 1 mole and have different quantities?

How do I know how much mass each of the above pictures have?

Moles Formulas

Mole formula #1	Mole formula #2
	

Things to MEMORIZE

- Molarity and molar concentration means the same thing. Unit is mol/L or M.
- Volume question unit must be in L.
- Atom or molecule question you must multiply answer by 6.02×10^{23}.
- If there is a ‘g' unit if the question the formula n=m/mm is always used first.
- If there is a ‘mol/L’unit in the question it can be solved using n = C x V or as a ratio.
- To convert mL to L ÷ by 1000
- To convert mg to g ÷ 1000