Molarity

In chemistry we use a measurement called **The Mole**. Remember that the mole stands for Avogadro's Number 6.02×10^{23}. It works just like a dozen represents 12, one mole represents 6.02×10^{23}. Since atoms and molecules are so small, we have to work with a large number of them to do the types of chemistry that we can see and measure. The higher the number of moles, the more items are present. Just like the higher the number of dozens the more items are present.

For example 5 moles has more items than 2 moles or 5 dozen has more items than 2 dozen.

Indicate **<u>more</u>** or **<u>less</u>** on the line.

10 moles	_____	7 moles
2 moles	_____	15 moles
56 moles	_____	156 moles
91 moles	_____	25 moles

When we talk about concentration of a solution, we talk about the number of moles of a solute in <u>one litre</u> of solution. This is called **<u>MOLARITY</u>**. Therefore molarity is measured in moles/L. The unit for moles/L is **M**. The higher the molarity, the more concentrated the solutions will be because it has more moles or particles in it. (more solute)

For example 3 M has more particles in it than 1M. Indicate more or less on the lines.

5M _____ 7M

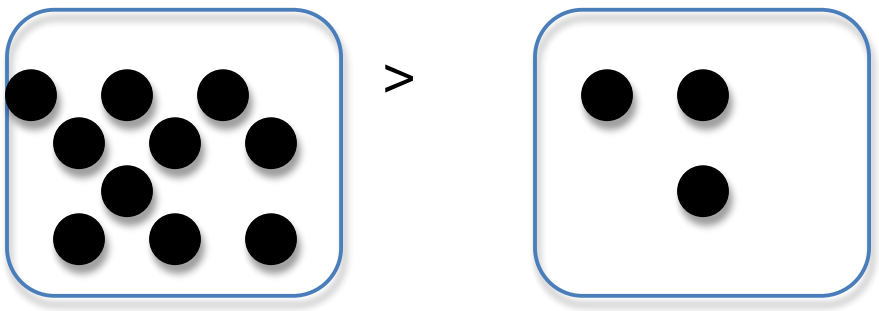
2M _____ 11M

56M _____ 7M

0.5M _____ 1M

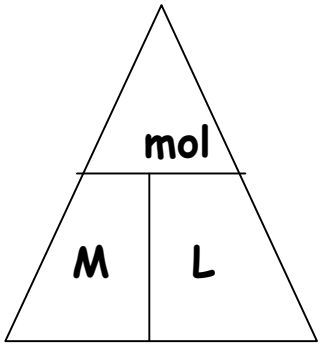
0.1M _____ 1M

10 M 3 M ● = 1 M



Calculating Molarity

Molarity **M = <u>moles</u>**
L



Examples:

A NaOH solution contains 0.186 moles of NaOH in 0.25L of solution. What is the molar concentration?

M= <u>moles</u> = <u>0.186 moles</u> = 0.74 M
litres 0.25 L

A 3.45 M solution has 5.76 moles of MgO. What volume would it be?

L= <u>moles</u> = <u>5.76 moles</u> = 1.67 L
M 3.45 M