

Empirical Formula Determination (in 5 or 6 easy steps)

1. If you have percent composition, take each number in grams (as if using a 100-gram sample).
2. Be sure you are starting with grams of each element.
3. Convert each element from grams to moles
4. Divide the number of moles of each element by the smallest number.
5. If the numbers are reasonably whole numbers, round each to the nearest whole number. The whole numbers are the subscripts. Otherwise, go to then next step.
6. Determine which decimal ending is close to that in the table below and multiply each by the common denominator.

Principle of Common Denominator		
decimal ending	(approximate) fraction	Multiply each by denominator:
0.25	1/4	4
0.33	1/3	3
0.50	1/2	2
0.67	2/3	3
0.75	3/4	4