Empirical (Simplest) and Molecular Formulae

empirical formula - gives only the ratio in which the elements combine to form a compound
- the chemical formula in its most reduced (lowest) form
- sometimes the empirical formula is the actual formula as it exists in nature

e.g. CH_2O

molecular formula - the actual compound as it exists

e.g. $C_6H_{12}O_6$

e.g. a) 100 g of a compound contains 5.9 g of H and 94.1 g of O. Find the empirical for the compound.

b) The molar mass for the compound is 34.0 g/mol. Find the molecular formula of the compound.

a)

element	mass (g)	molar mass $\left(\frac{g}{mol}\right)$	moles	ratio	whole # ratio

b) $M_{empirical}$ = $\underline{M}_{molecule}$ =

$$\frac{\underline{M}_{molecule}}{M_{empirical}} = \text{factor to multiply the emp. formula} =$$

e.g. A compound is 25.93 % N and 74.07 % O. The molar mass of this compound is 10802 g/mol. Find the molecular formula.