

Info about mixing rules

The formula for mixing rule is given on page 7. This is what the notation means, for a 3 component system. The formula

$$a = \sum_{i,j=1}^3 y_i y_j a_i^{0.5} a_j^{0.5}$$

where the y 's are the mole fractions and the a 's are the a 's for each species, represents a sum

$$\begin{aligned} a = & y_1 y_1 a_1^{0.5} a_1^{0.5} + y_1 y_2 a_1^{0.5} a_2^{0.5} + y_1 y_3 a_1^{0.5} a_3^{0.5} \\ & + y_2 y_1 a_2^{0.5} a_1^{0.5} + y_2 y_2 a_2^{0.5} a_2^{0.5} + y_2 y_3 a_2^{0.5} a_3^{0.5} \\ & + y_3 y_1 a_3^{0.5} a_1^{0.5} + y_3 y_2 a_3^{0.5} a_2^{0.5} + y_3 y_3 a_3^{0.5} a_3^{0.5} \end{aligned}$$

This is the same as (see the book for intermediate steps

$$a = \left(\sum_{i=1}^3 y_i a_i^{0.5} \right)^2 = (y_1 a_1^{0.5} + y_2 a_2^{0.5} + y_3 a_3^{0.5})^2$$

When you turn in your assignment (Friday for Tuesday's section, Monday for Wednesday's section), if it is in Excel (common for this assignment) you can use text boxes to put in your explanation of what checks you've applied to your results. To get the text box, insert the drawing toolbar if it isn't there, click on the flat rectangle, and on the spreadsheet click once and drag to enlarge the text box. Then type what you want inside.

More information is available about the text box on p. 230 of the text. You can find that by looking up the Excel commands on page 332.