f. now $w_i - w_f = 1$ $\xrightarrow{\text{so}}$ $w_f = w_i - 1$

$$w_f = f(w_i) = \frac{100}{w_i}\left[100 - (100 - w_i)\left(\frac{w_i - 1}{100 - (w_i - 1)} + 1\right)\right]$$

$$f(w_i) = \frac{100}{w_i}\left[100 - (100 - w_i)\left(\frac{w_i - 1}{101 - w_i} + 1\right)\right]$$

?:

g. $S = 1$ = fixed amount of solute
w_i = initial percent of water
w_f = final percent of water

Express the proportion of water as a fxn. of the absolute amt. of watr in the substance

initial proportion of water:

$$\frac{100 - w_i}{S = 1 = 100 - w_i}$$

$$\frac{w_f}{100 - w_f} = \frac{\text{final amt. of water in the substance}}{100 - w_i}$$

$$\frac{\text{initial amount of watr}}{S} = \frac{w_i}{100 - w_i} \rightarrow \text{initial} = S \cdot \frac{w_i}{100 - w_i}$$

$$\frac{\text{final amt. of water}}{S} = \frac{w_f}{100 - w_f} \rightarrow \text{final} = S \cdot \frac{w_f}{100 - w_f}$$

proportion H_2O evaporated:

$$\frac{\text{initial} - \text{final}}{\text{initial}} = \frac{S\left(\frac{w_i}{100 - w_i} - \frac{w_f}{100 - w_f}\right)}{S \cdot \frac{w_i}{100 - w_i}}$$

where $S = 1$:

$$\frac{1 - f}{1} = 1 - \frac{\frac{w_f}{100 - w_f} \cdot \frac{100 - w_i}{w_i}}{\frac{w_i}{100 - w_i} \cdot \frac{100 - w_i}{w_i}} = 1 - \frac{w_f(100 - w_i)}{w_i(100 - w_f)}$$

this is right!