a) $\sum_{1}^{n} \frac{1}{i+1} = \sum_{0}^{n} \frac{1}{i+1} - 1$

$= \sum_{1}^{n} \frac{1}{i} + \frac{1}{n+1} - 1$

$= x + \frac{1}{n+1} - 1$

$= x + \frac{1-n-1}{n+1}$

$= x \frac{-n}{n-1}$