$$\frac{V K_{m-1} \frac{C_{Am-1}}{C_{A_0}} \frac{C_{A_1}}{C_{A_0}}}{V K_m \frac{C_{A_1}}{C_{A_0}^2} + q \cdot \frac{1}{C_{A_0}^2}}$$

on simplifying & putting $K_i = \left(\frac{k}{\ell}\right)$

$$C_{Am} = \frac{\eta \left(\frac{C_{Am-1} C_{A_1}}{m-1}\right)}{\frac{1}{C_{A_0}^2}\left(1 + \frac{\eta C_{A_1} C_{A_0}}{m}\right)}$$

C_{A_1} from 1st equation

$$C_{Am} = \frac{q \left(\frac{C_{Am-1} C_{A_1}}{m-1}\right)}{\frac{1}{C_{A_0}^2}\left(\frac{1}{\eta} + \frac{C_{A_1} C_{A_0}}{m}\right)}$$

for

case 1 $\eta <<< 1$ $\quad \frac{1}{\eta} >>>> \left(\frac{C_{A_1} C_{A_0}}{m}\right)$

$$\therefore \quad C_{Am} = \eta C_{A_0} \left(\frac{C_{Am-1} C_{A_1}}{m-1}\right)$$

case $\eta >>> 1$ $\quad \frac{1}{\eta} <<<< \left(\frac{C_{A_1} C_{A_0}}{m}\right)$