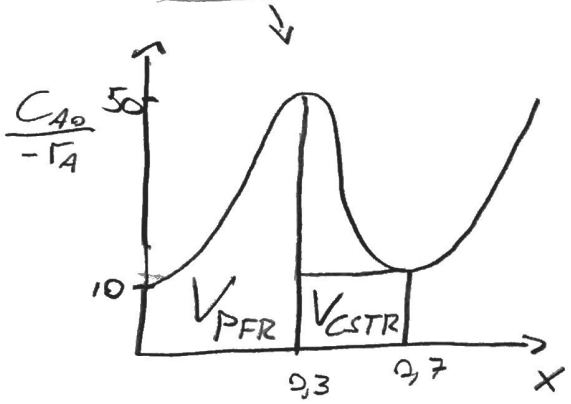
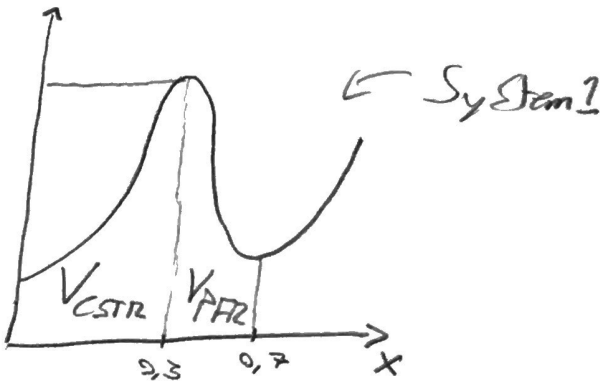
Vegard G. Jervell, Reltek, Øving 1.

- Oppg. 2a)

System 2 gir minst reaktorvolum





- Oppg. 2b)

$$F_{A0} = C_{A0}\phi_v$$

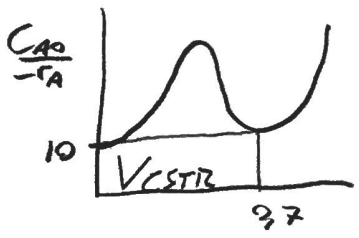
$$V_{PFR} = \int_0^{0,3} \frac{F_{A0}}{-r_A} dX \approx 50\left(10 \cdot 0,3 + \frac{40 \cdot 0,3}{2}\right) = 450\,L$$

$$V_{CSTR} = \frac{F_{A0}}{-r_A} \Delta X \approx 50 \cdot 10 (0,7 - 0,3) = 200\,L$$

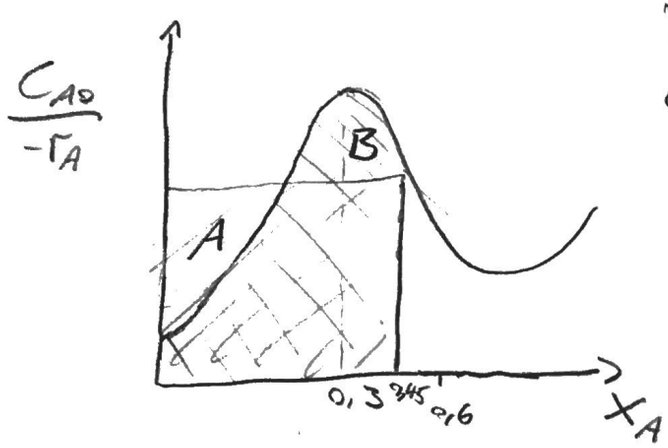
$$\underline{V_{tot} = V_{PFR} + V_{CSTR} = 650\,L}$$

- Oppg. 2c)

En CSTR med volum $V_{CSTR} \approx 350\,L$ vil også gi $X = 0,7$.

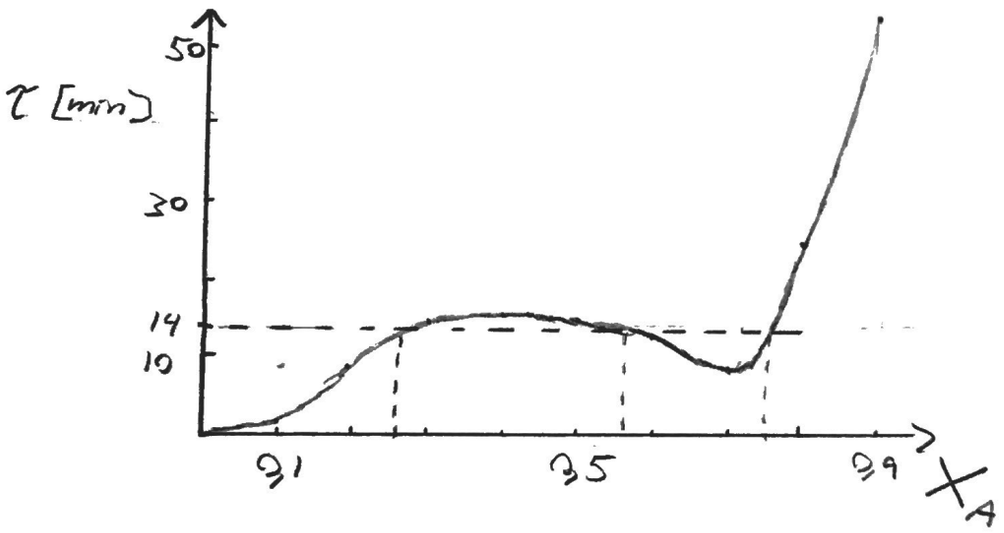


Oppg. 2d) Ved $\underline{\underline{X \approx 0{,}45}}$ Vil en PFR og en CSTR ha ca. samme Volum. Ble funnet ved å se på figuren og gjøre Areal A og B tilnc Størrelse.



Oppg 2c)

$$\tau = \frac{V_r}{\varphi_v} = \frac{X_A \frac{C_{A0}}{-r_A} \varphi_v}{\varphi_v} = X_A \frac{C_{A0}}{-r_A}$$



$$\tau(700\,L) = \frac{700\,L}{50\,L/min} = \underline{14\,min}$$

$$X_A(14\,min) = \{0{,}25,\ 0{,}55,\ 0{,}75\}$$