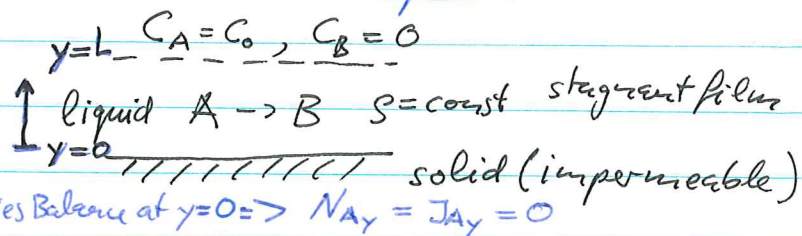


Ex. 3.2-1

Irreversible homogeneous reaction in liquids

$$0 = D_A \frac{d^2 C_A}{dy^2} + R_{VA}$$

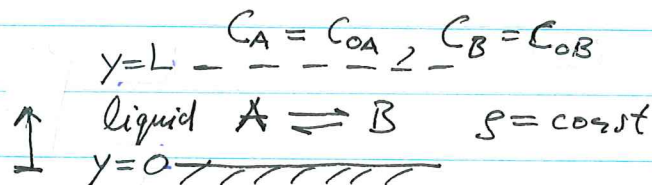


Ex. 3.2-2

Reversible homogeneous reaction in liquids

$$0 = D_A \frac{d^2 C_A}{dy^2} + R_{VA}$$

$$0 = D_B \frac{d^2 C_B}{dy^2} + R_{VB}$$



Ex 3.2-3

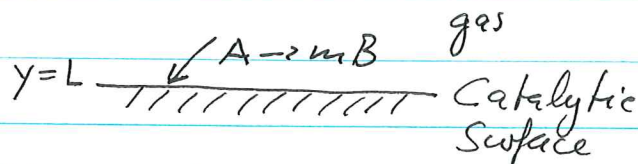
Heterogeneous reaction in binary gas

Continuity eq:  $\frac{d}{dy} (S v_y) = 0$  and  $v_y|_{y=L} = 0 \Rightarrow v_y = 0$

Conservat. eq.  $\frac{d}{dy} N_{Ay} = 0$   
 $S \neq \text{const}$  but  $C = \text{const}$ .



Interfacial Species Balance  $N_{By} = -m N_{Ay}$



use Fick's expression:  $N_{Ay} = x_A (N_{Ay} + N_{By}) - C D_{AB} \frac{dx_A}{dy}$

Ex 3.2-8

Homogeneous Irreversible reaction in porous catalyst

$$0 = D_{Ae} \nabla^2 C_i + R_{Vi}$$

spherical:  $\nabla^2 \rightarrow \frac{1}{r^2} \frac{d}{dr} (r^2 \frac{d}{dr})$

