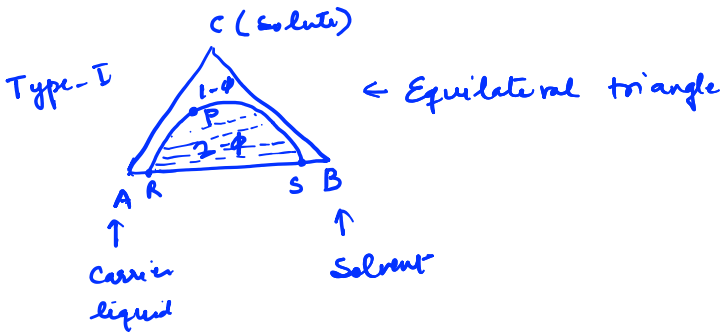
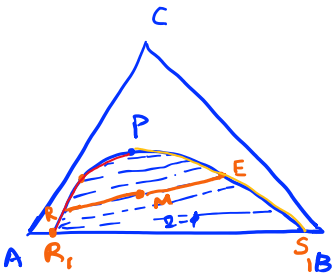
Liquid - liquid extraction continue..



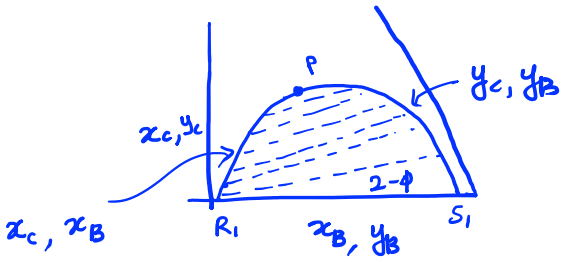
← Equilateral triangle

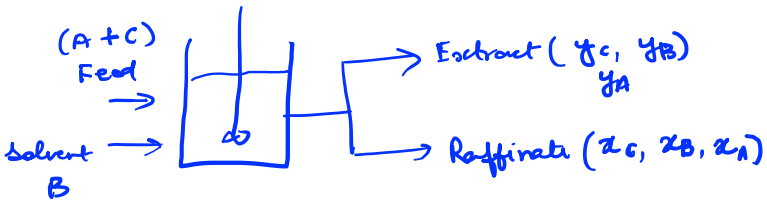


R_1P corresponds to the raffinate

S_1P corresponds to the extract

- Using right angle triangle





R_1P : x_B vs x_C

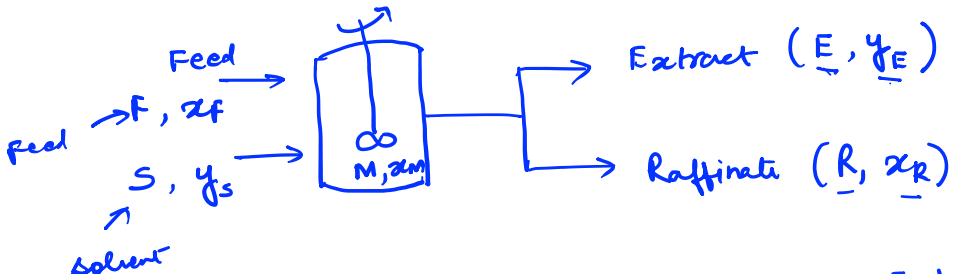
PS_1 : y_{IB} vs y_C

$x_A + x_B + x_C = 1$

$x_B = \dfrac{b}{a+b+c}$ in raffinate ; $y_B = \dfrac{b}{a+b+c}$ in extract

$x_C = \dfrac{c}{a+b+c}$ in raffinate ; $y_C = \dfrac{c}{a+b+c}$ in extract

Single stage operation



From mass balance: $F + S = E + R = M$

From solute balance: $F x_f + S y_s = E y_E + R x_R = x_m M$

$$\checkmark \quad x_m = \left(\frac{F x_f + S y_s}{M}\right)$$

↑ Mass fraction of solute (C) in mixture