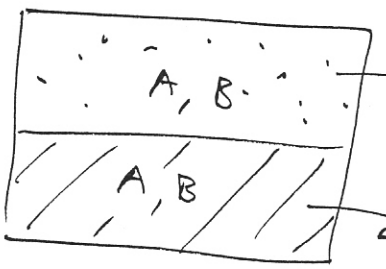
50 mol - A		50 mol - B	(Whatever phase)



→ gas phase

→ liq phase

$T = 50\ ^\circ C$

$P = 1$ atm

~~$x_A = 0.20$; $x_B = 0.1$~~

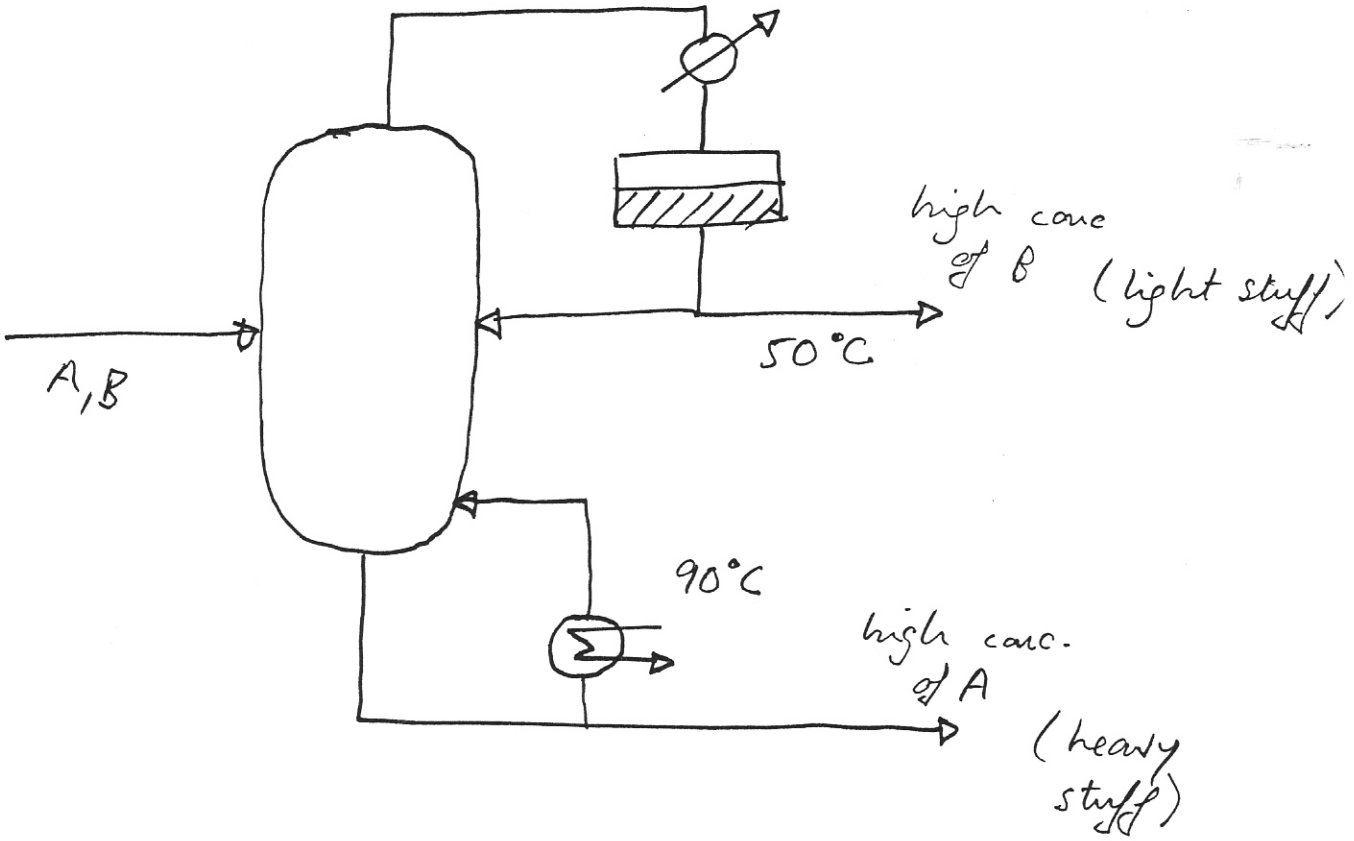
~~$y_A =$~~

	A	B	
liquid	5	30	35
gas	45	20	65
	50	50	

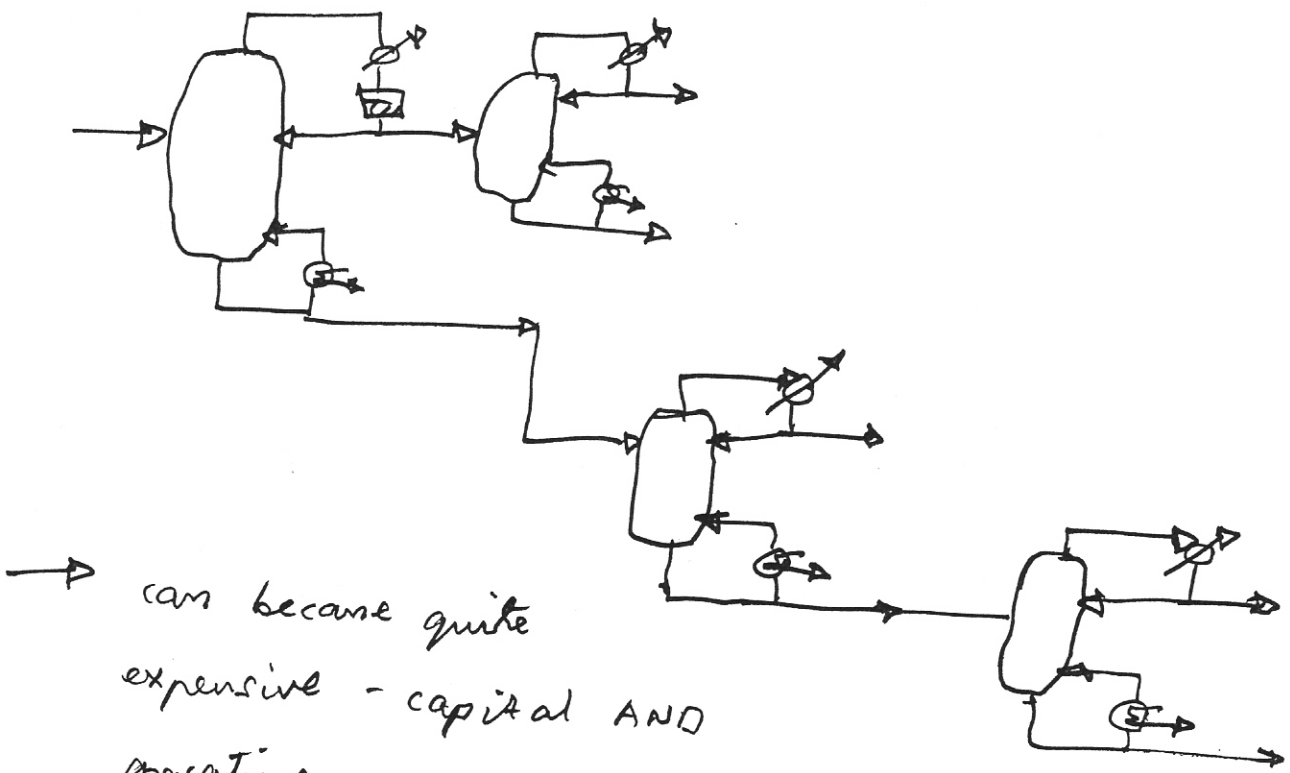
} Say this is what we measure after mixing

∴ find pretty good separation of A, B in liq phase; not so good in gas. (@ 50 °C)

Say @ 90 °C get V good separation in gas → would like to maintain two diff. temps. in one separations unit → distillation column.

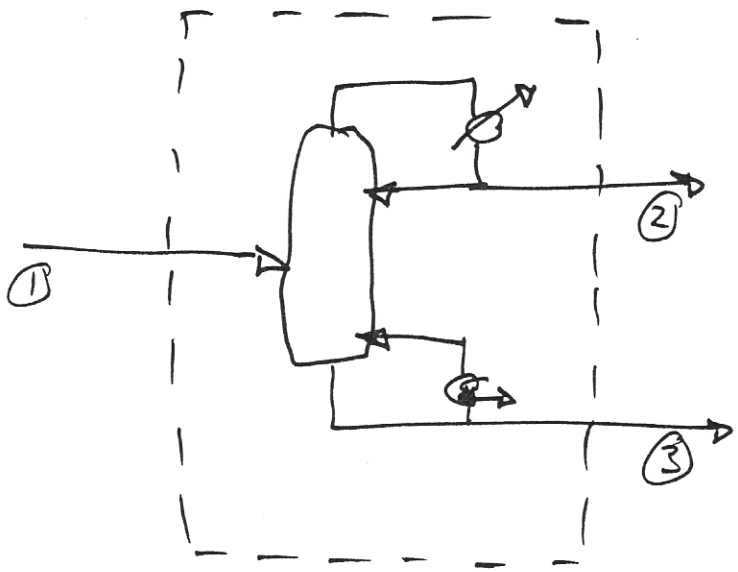


Won't get perfect separation - always get mixture.
(why? becos. even below boiling pt, still have partial pressure)
∴ often need a train of columns



→ can become quite expensive - capital AND operating
- separation costs ≈ 50%
∴ better catalysts or processing of products

Nb: material balance must be satisfied!



$\dot{n}_{i,1} = \dot{n}_{i,2} + \dot{n}_{i,3}$ at steady state with no reaction