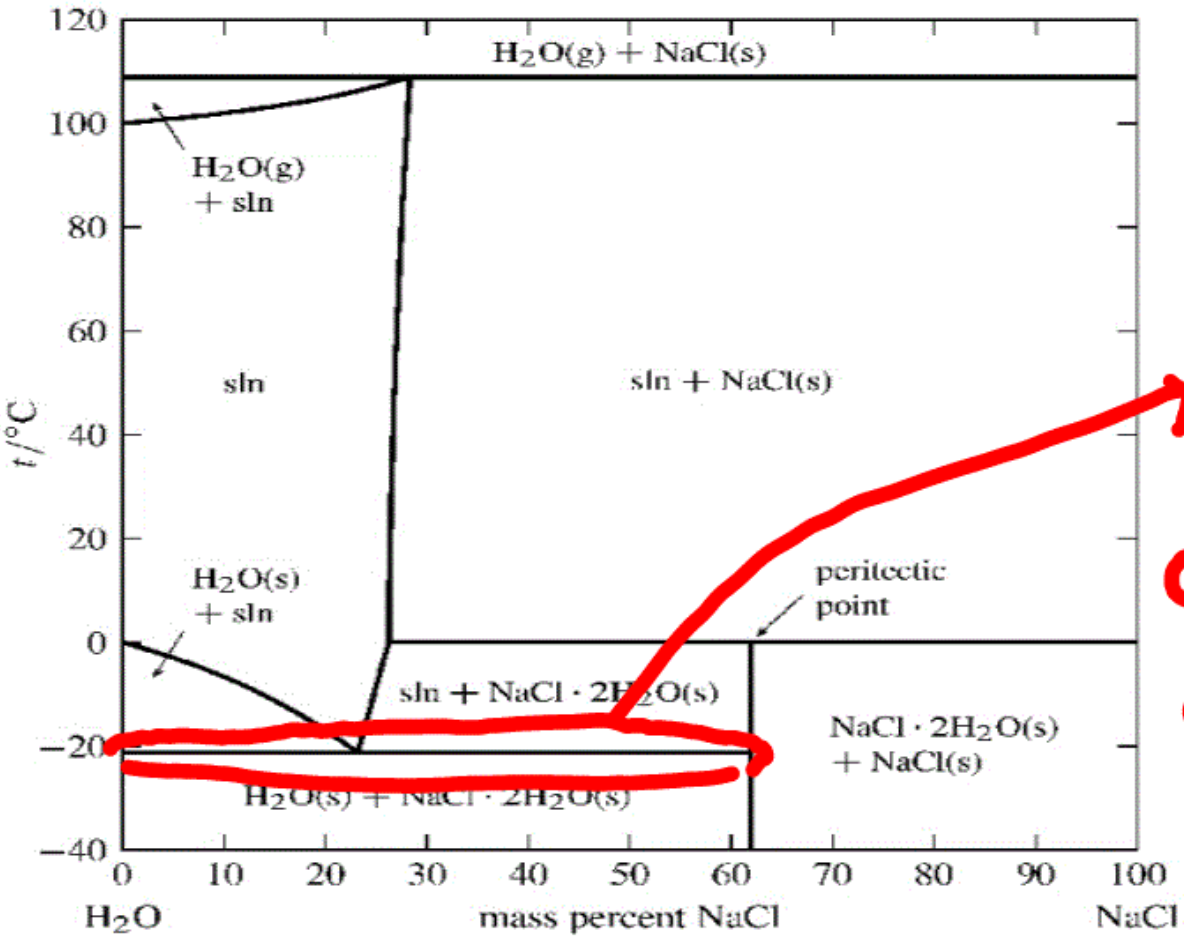
Clase 24 Junio 2021

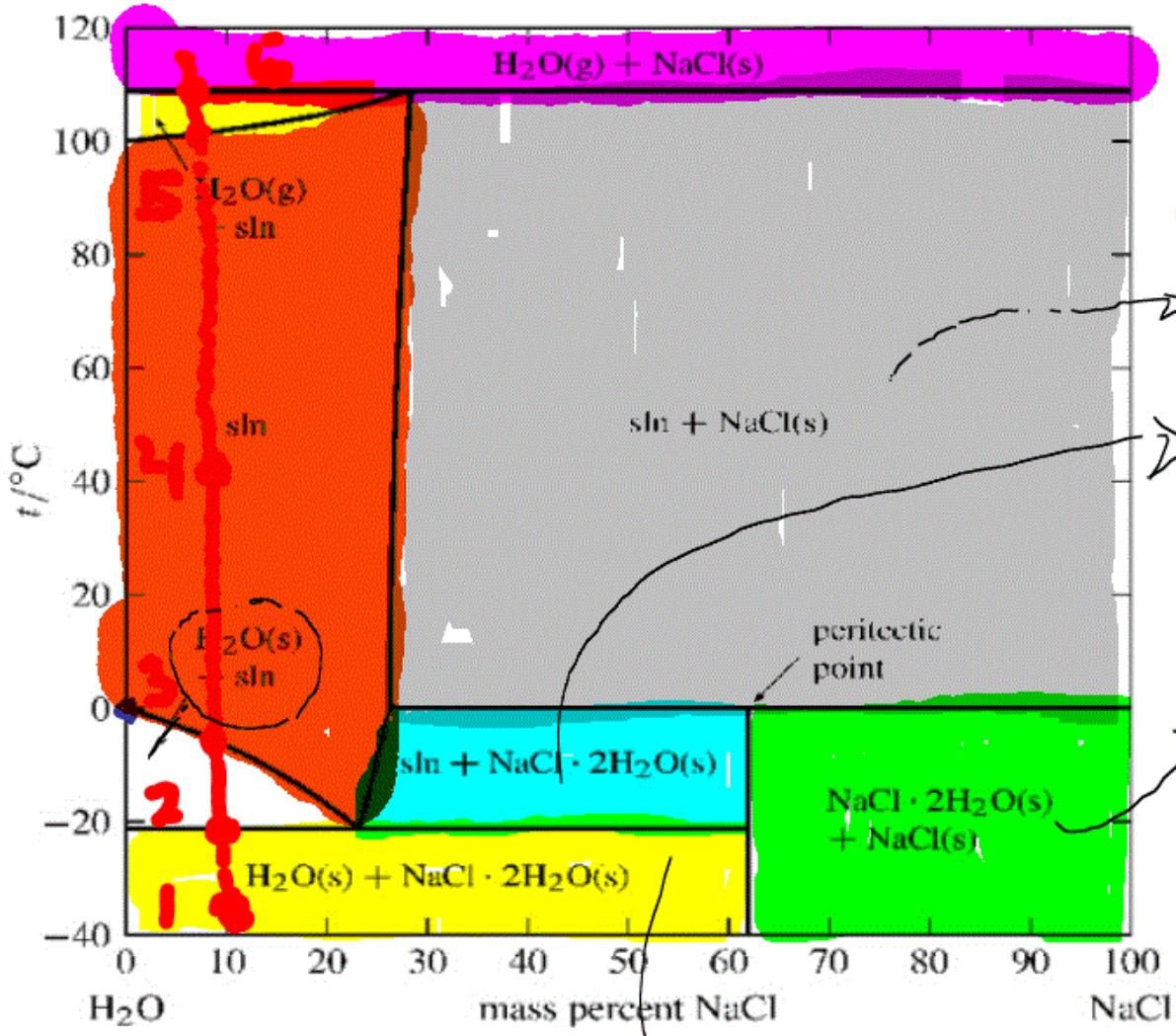
Título de la nota 24/06/2021



p=cte

T=cte

Cambio de Fase



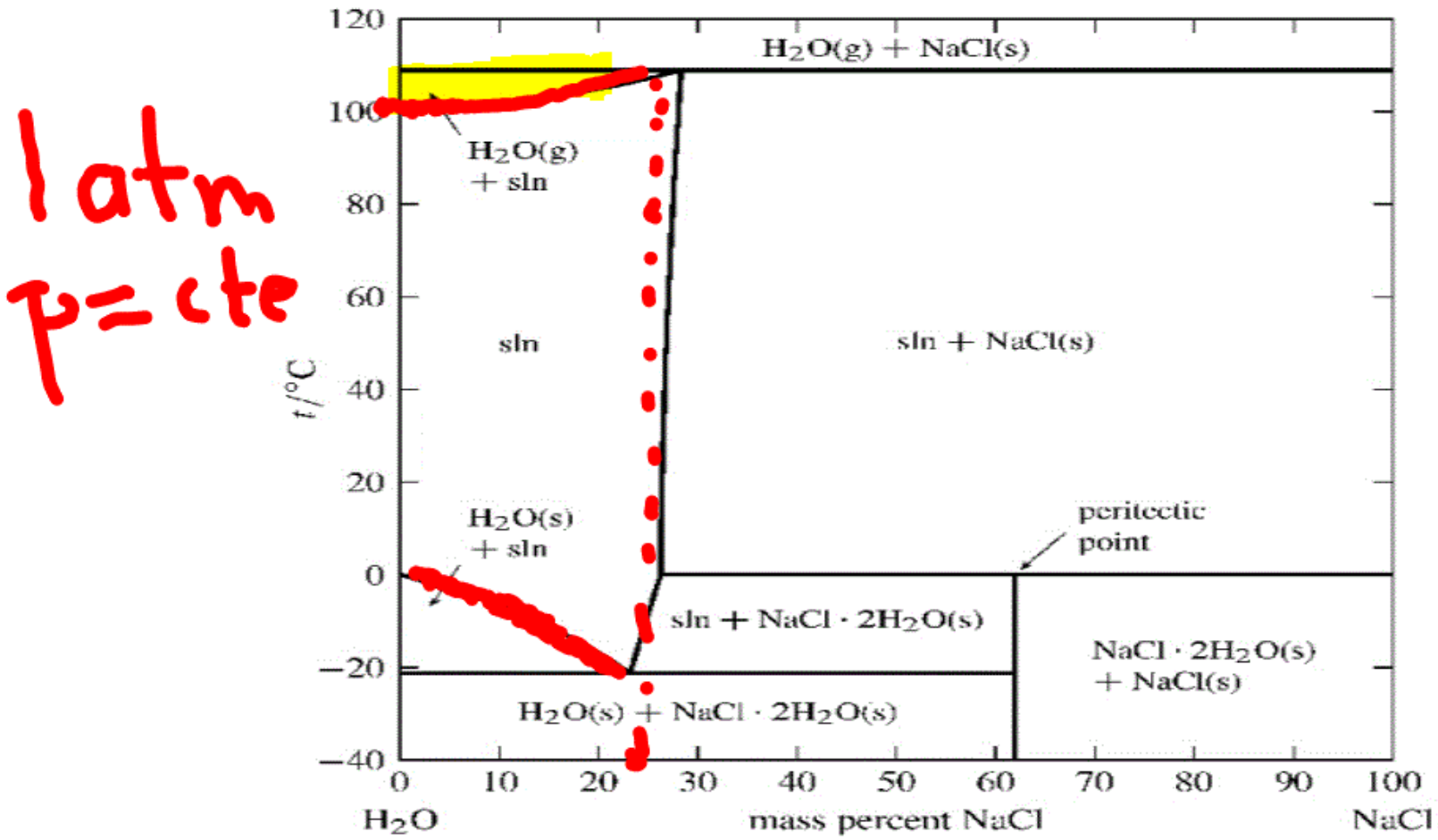
1.

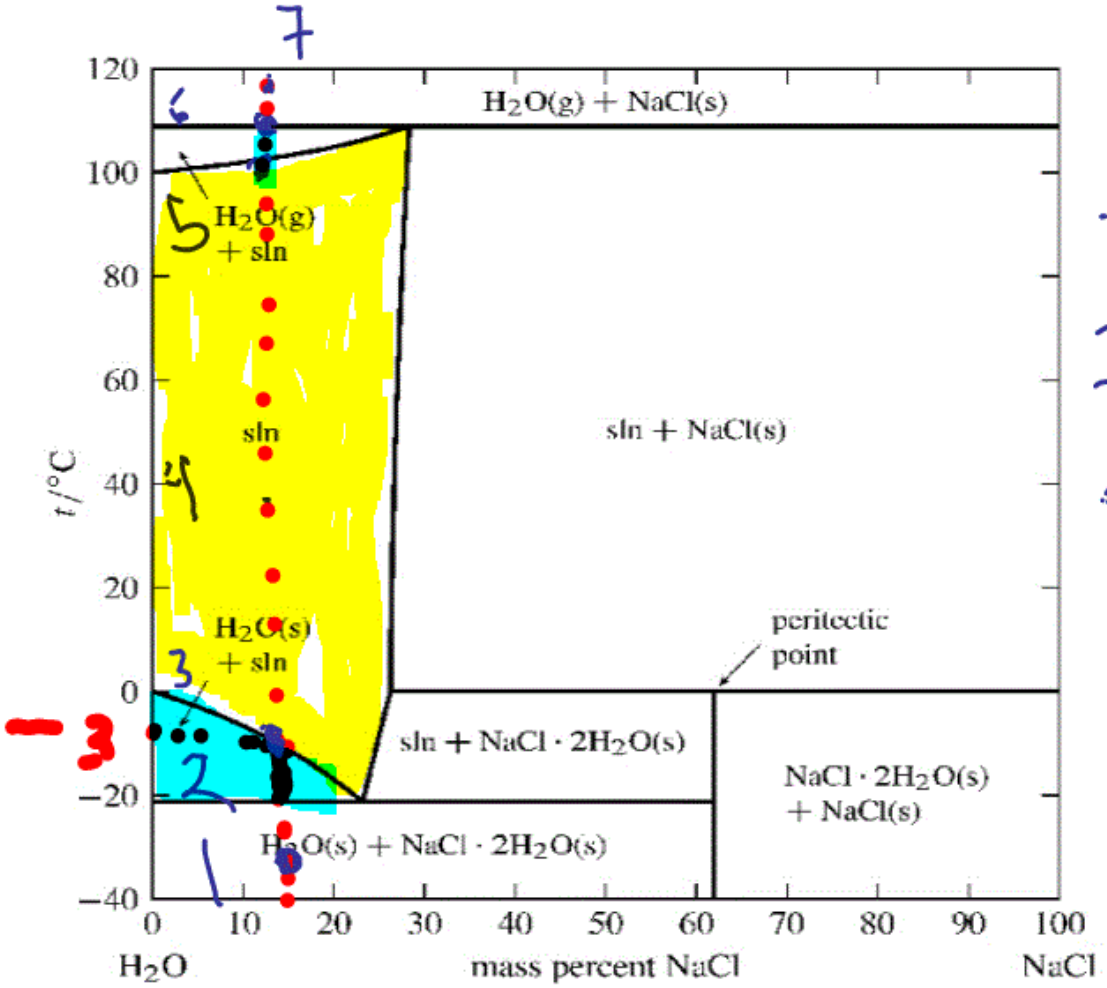
heterogeneo

heterogeneo

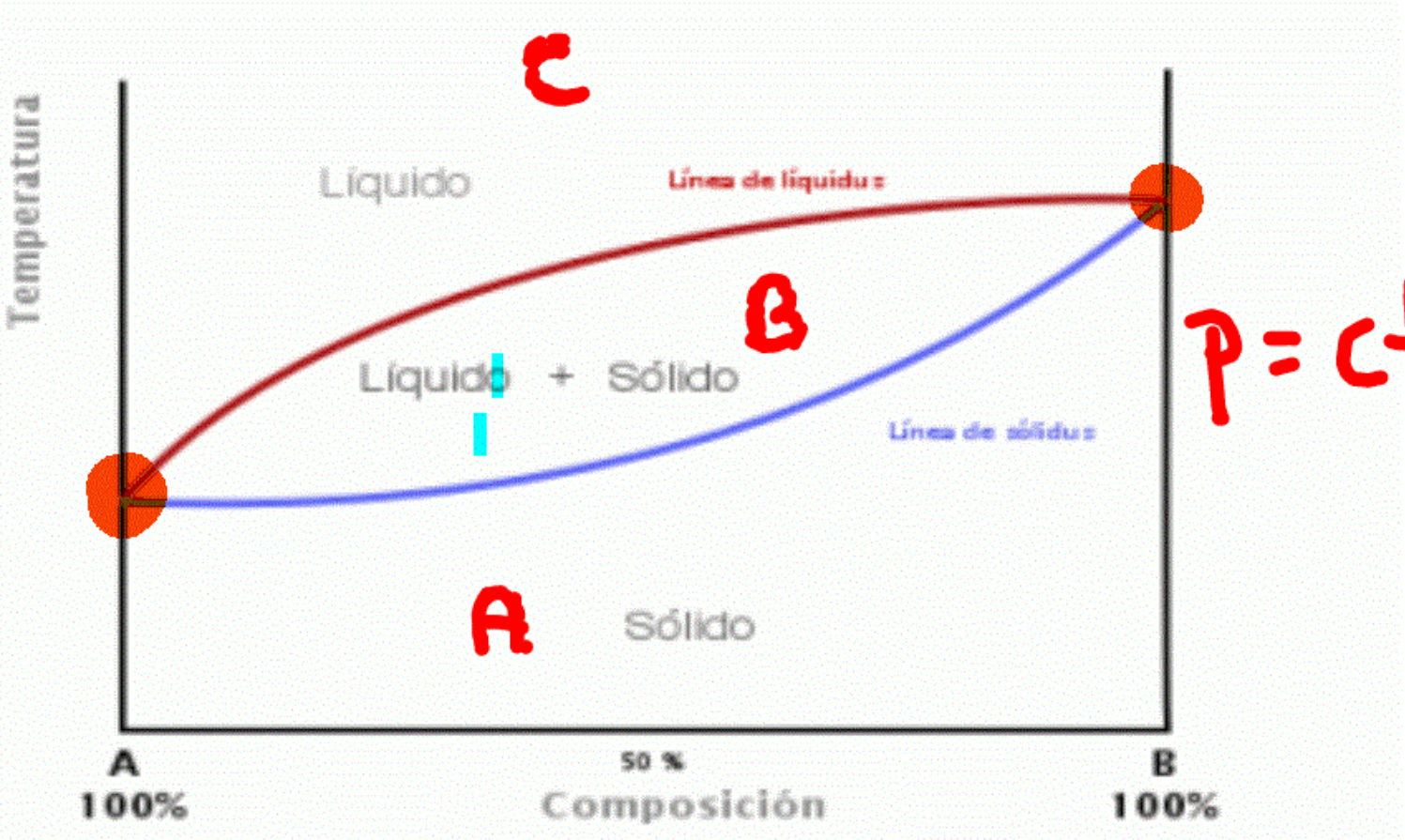
heterogenea

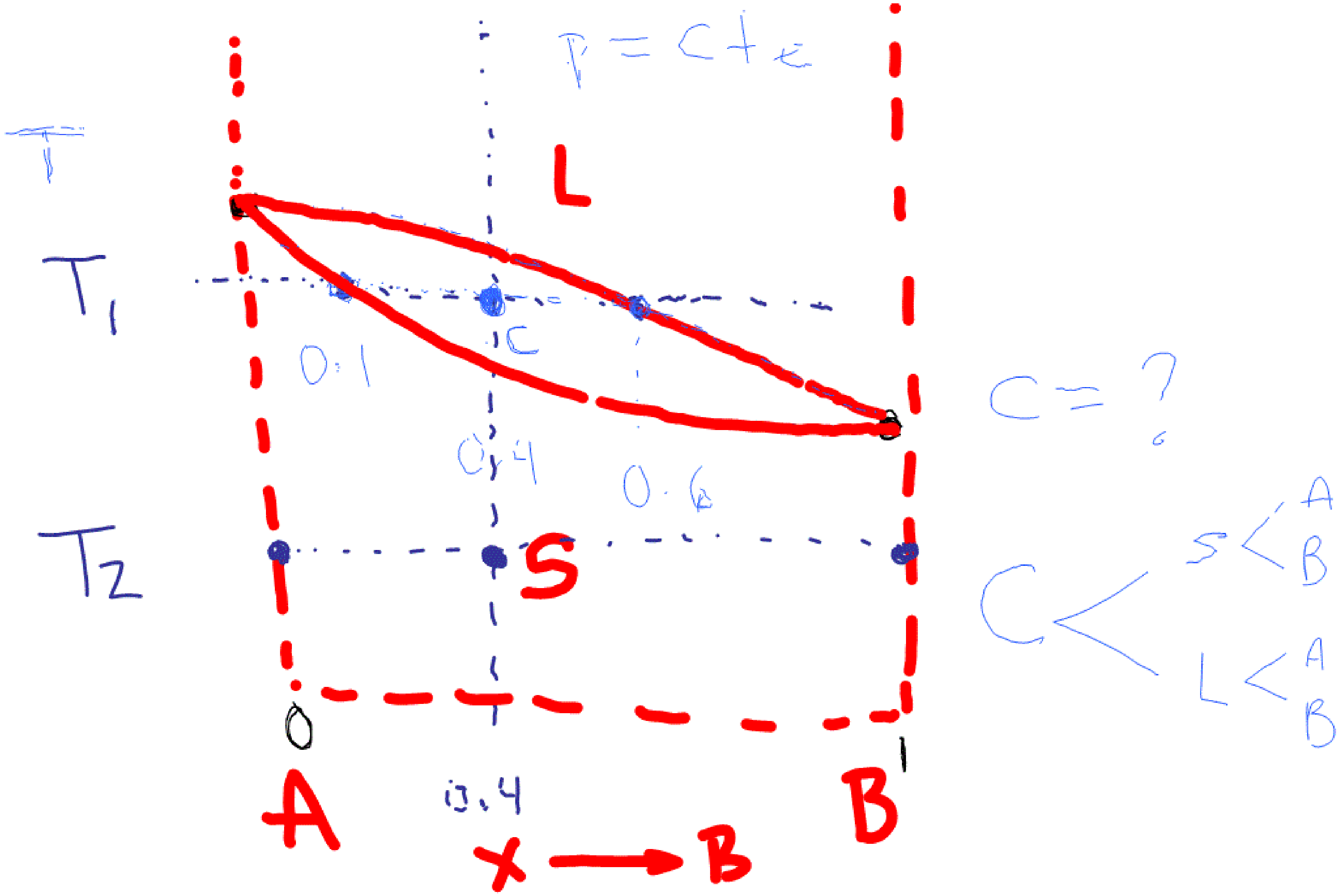
heterogeneo 2 fases


1 atm
P= cte
120
100
80
60
40
20
0
−20
−40
t/°C
H2O(g) + NaCl(s)
H2O(g) + sln
sln
sln + NaCl(s)
H2O(s) + sln
peritectic point
sln + NaCl · 2H2O(s)
NaCl · 2H2O(s) + NaCl(s)
H2O(s) + NaCl · 2H2O(s)
0 10 20 30 40 50 60 70 80 90 100
H2O
mass percent NaCl
NaCl



1. 2 fases
2. cambio de fase
3.
4
5
6
7


C
Líquido
Línea de líquidus
B
Líquido + Sólido
Línea de sólidus
P = cte
A
Sólido
Temperatura
A
100%
50 %
Composición
B
100%


P = Cte
T
L
T1
0.1
C
0,4
0.6
C = ?
T2
S
S < A B
C
L < A B
0
A
0,4
1
B
X → B

Calcular la composición del punto C

Cuando se mezclan 0.4 moles de B

y 0.6 moles de A

$n_{total} = 1\ mol$ $\quad X_A = \frac{0.6\ mol}{1\ mol} = 0.6$

Isopleta ⟵ $\quad X_B = \frac{0.4\ mol}{1\ mol} = 0.4$

$$\frac{n_L}{n_S} = \frac{0.4 - 0.1}{0.6 - 0.4} = \frac{0.3}{0.2} = 1.5$$

$$n_L + n_S = n_{totales}$$

$$\boxed{n_L = 1.5\, n_S}$$

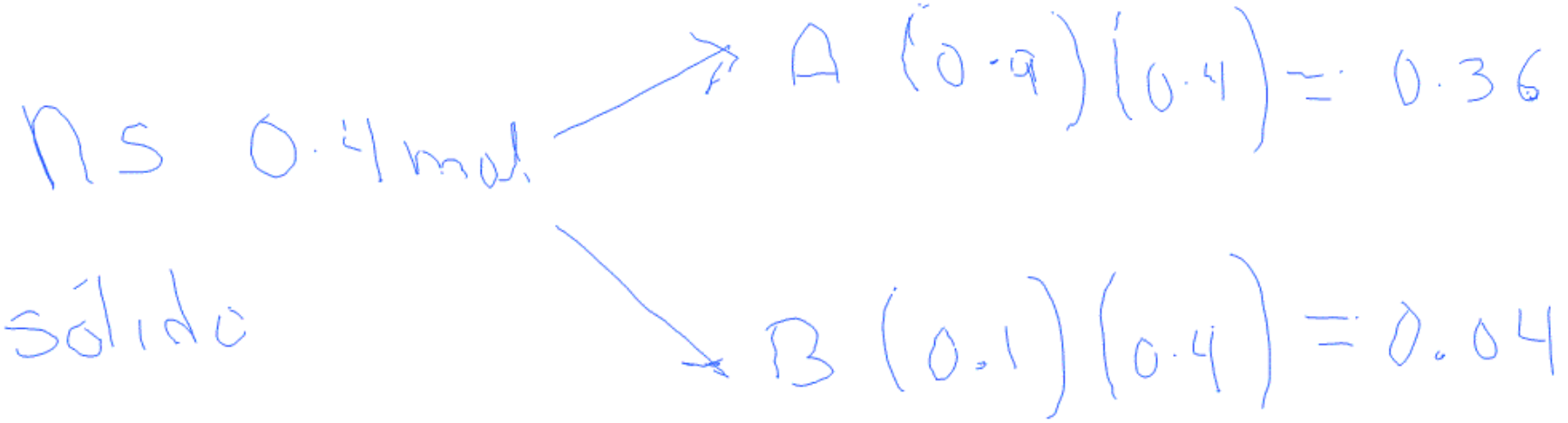
$$1.5\,n_S + n_S = 1\,mol$$

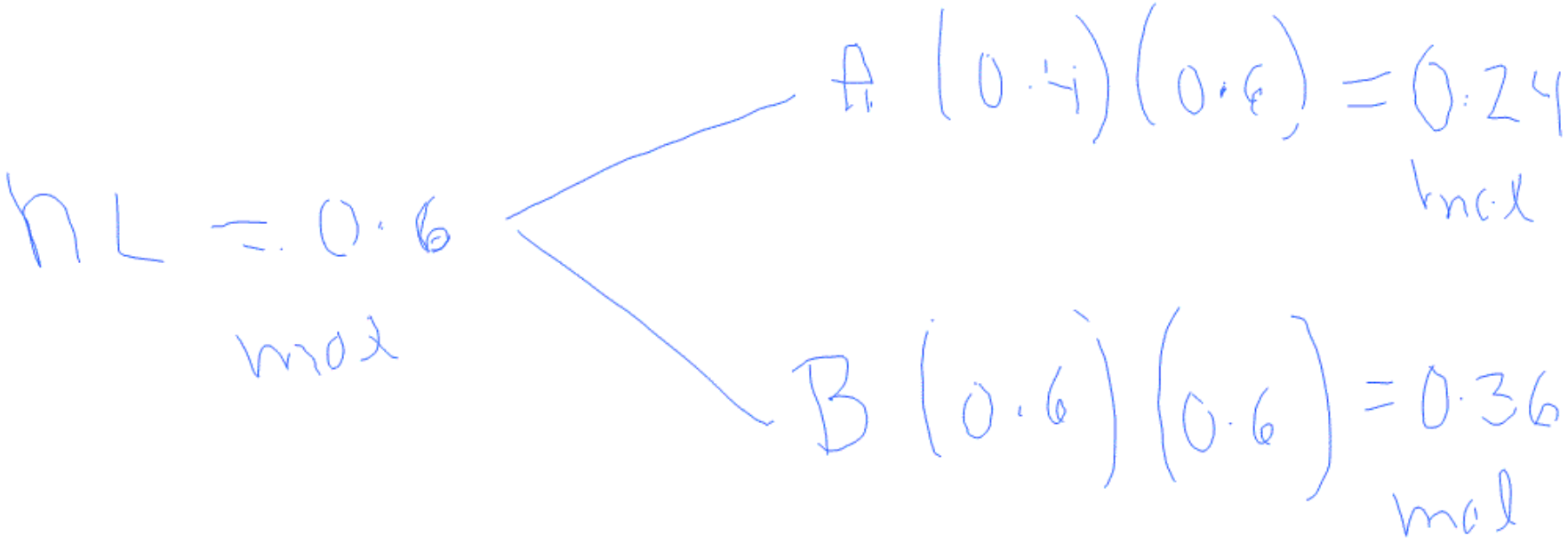
$$2.5\,n_S = 1\,mol$$

$$n_S = \frac{1}{2.5} = 0.4\ mol$$

$$n_S + n_L = 1\,mol$$

$$n_L = 1 - 0.4 = 0.6\ mol$$

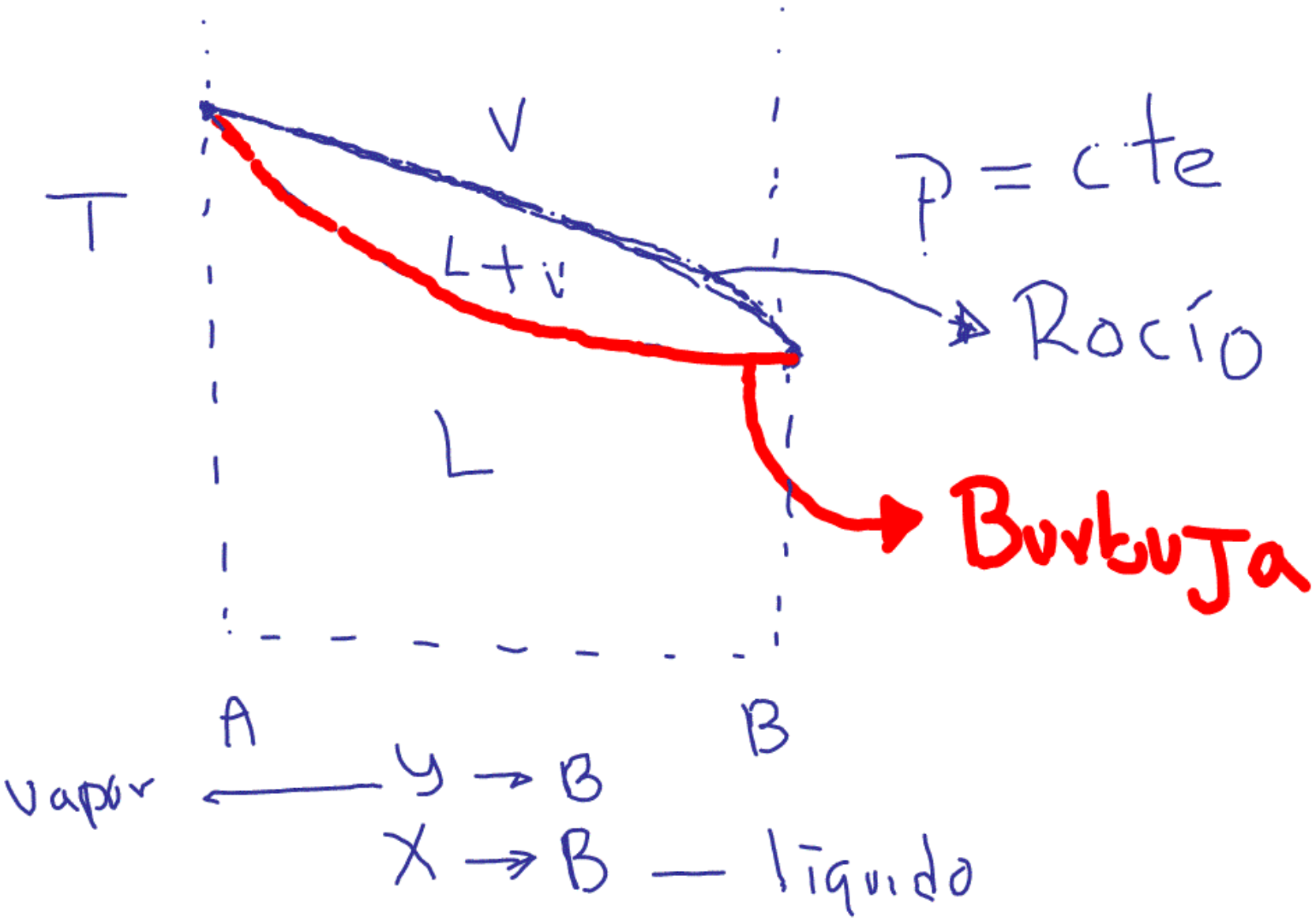

ns 0.4 mol
sólido
A (0.9)(0.4) = 0.36
B (0.1)(0.4) = 0.04


nL = 0.6
mol
A (0.4)(0.6) = 0.24
mol
B (0.6)(0.6) = 0.36
mol

Zona S-S a T_2

$$\frac{n_{SA}}{n_{SB}} = \frac{1-0.4}{0.4-0} = \frac{0.6}{0.4}$$

$$\frac{n_{SB}}{n_{SA}} = \frac{0.4-0}{1-0.4} = 0.6667$$


T
V
L + v
L
P = cte
Rocío
Burbuja
A
B
Vapor
y → B
X → B — líquido

Dalton

$$p_{total} = \sum_{i=1}^{n} p_i$$

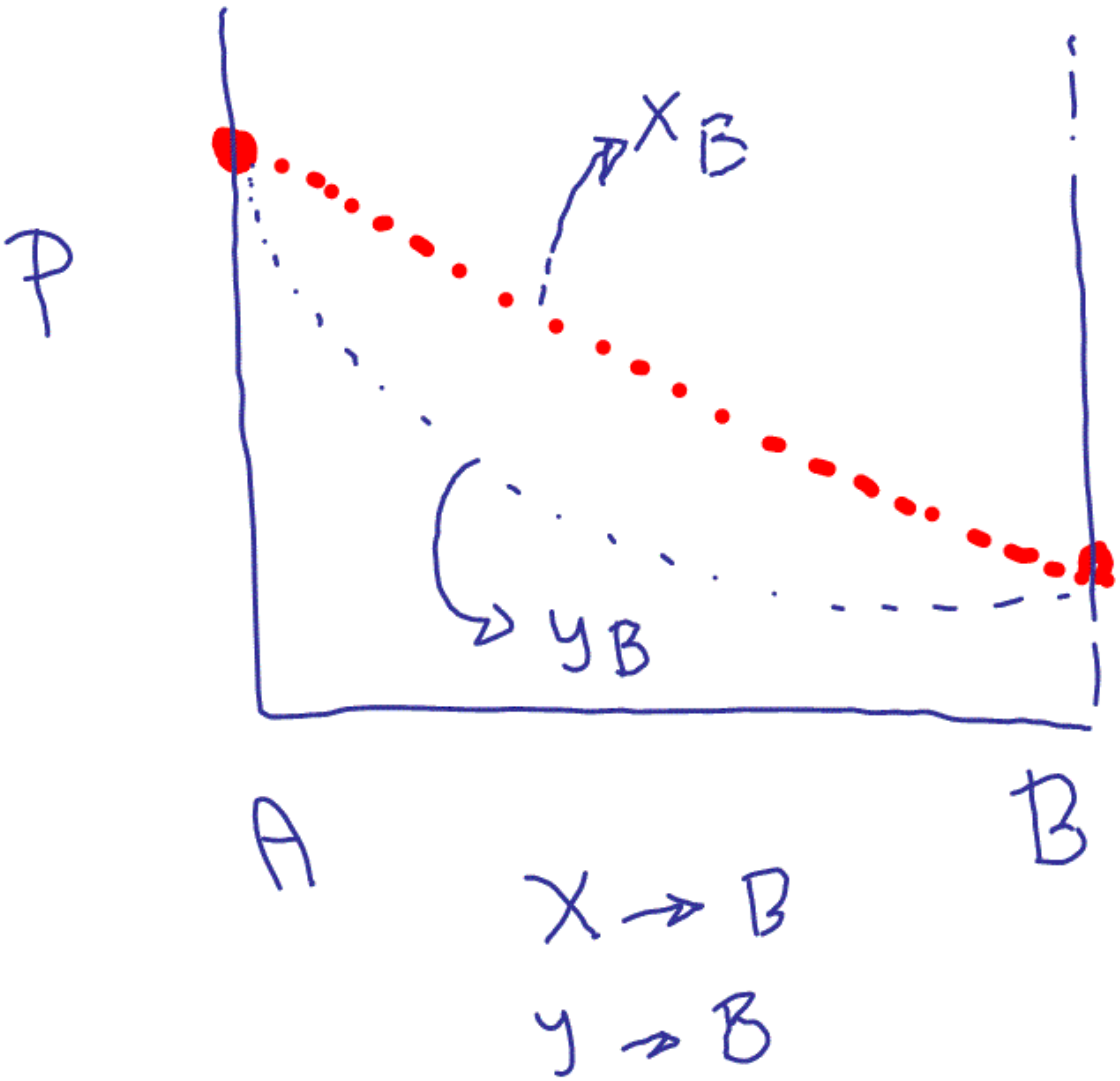
$$= p_{total}(y_A) + p_{total}(y_B)$$

Raoult

$$P_{total} = P^0_A X_A + P^0_B X_B$$

Línea recta

$$\boxed{y = b + mx}$$



T cte

B = Tolueno

A = Benceno

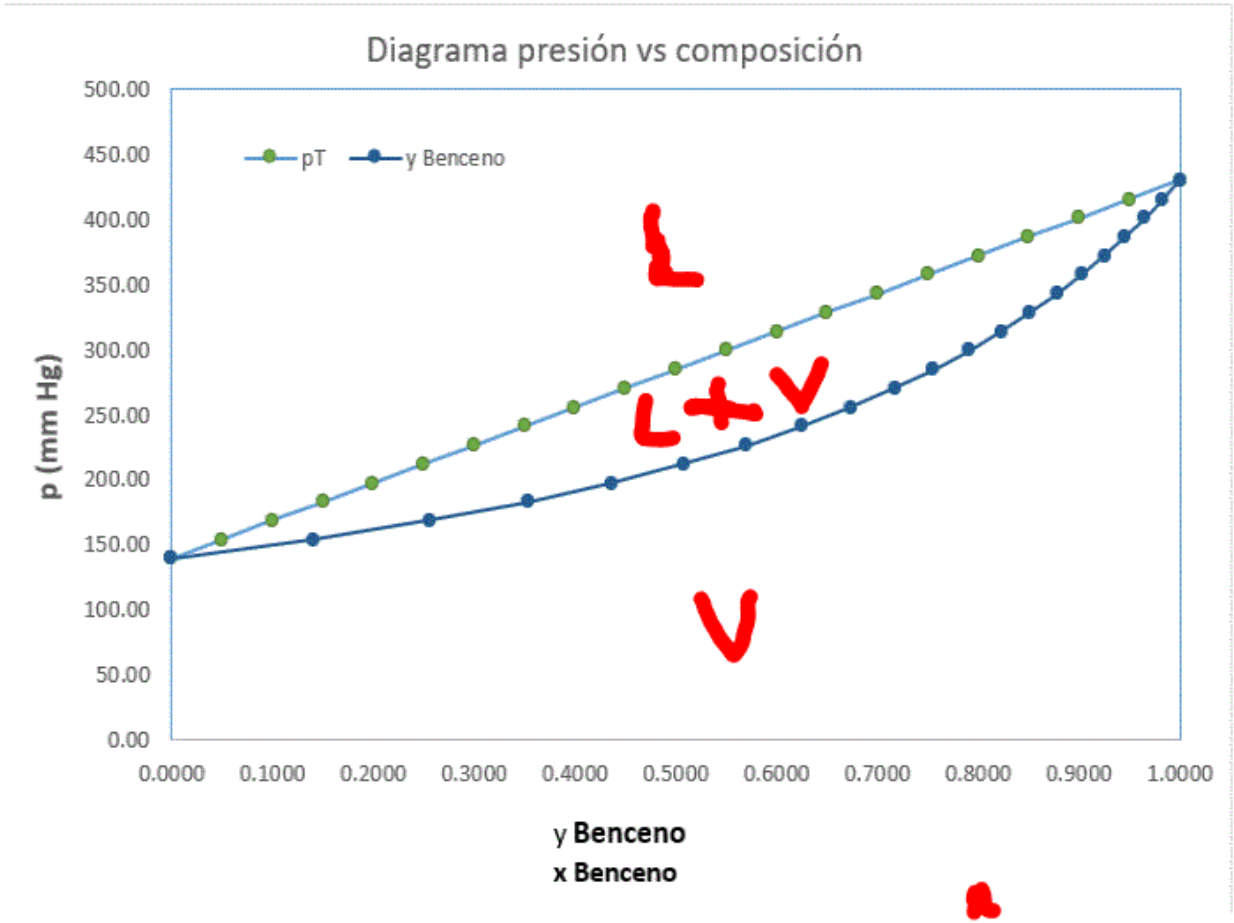


Diagrama presión vs composición
pT
y Benceno
p (mm Hg)
500.00
450.00
400.00
350.00
300.00
250.00
200.00
150.00
100.00
50.00
0.00
0.0000
0.1000
0.2000
0.3000
0.4000
0.5000
0.6000
0.7000
0.8000
0.9000
1.0000
y Benceno
x Benceno
L
L+V
V