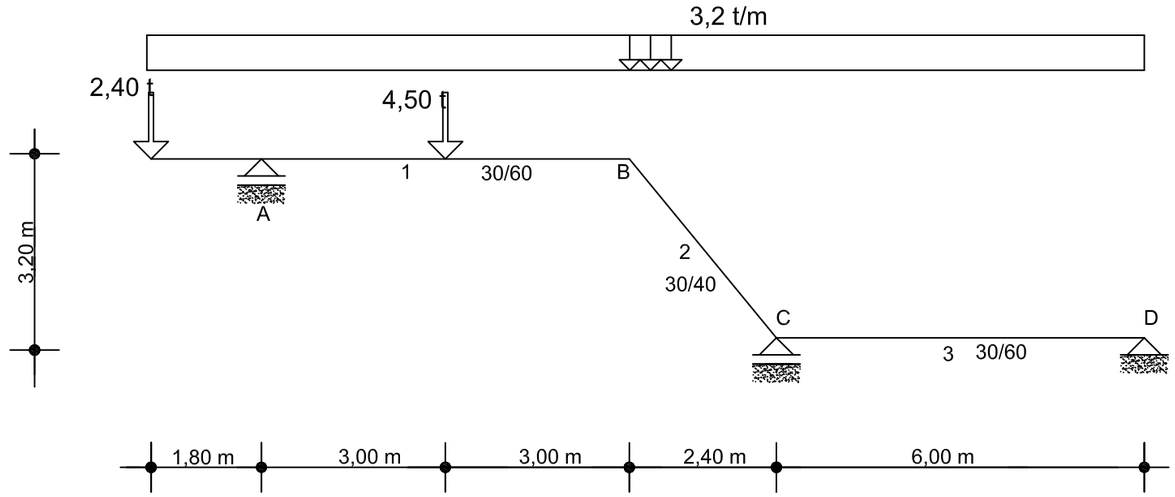
ESCUELA UNIVERSITARIA DE ARQUITECTURA TÉCNICA
Dpto. "TECNOLOGÍA DE LA EDIFICACIÓN"
(223) ESTRUCTURAS DE EDIFICACIÓN II
PRIMERA PRUEBA PARCIAL (07/02/2008)

Apellidos:	Nombre:	D.N.I.:	G

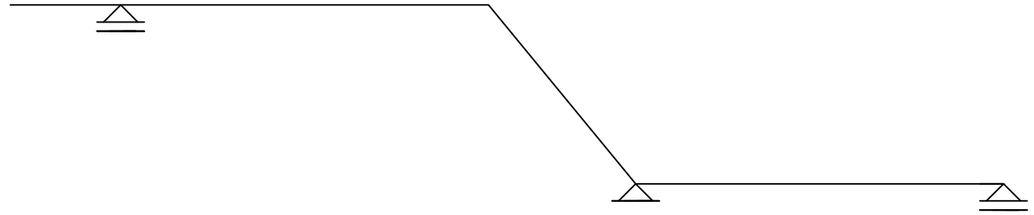
Mediante el Método de Cross, obtener las solicitaciones en las barras y representar los diagramas



ANÁLISIS

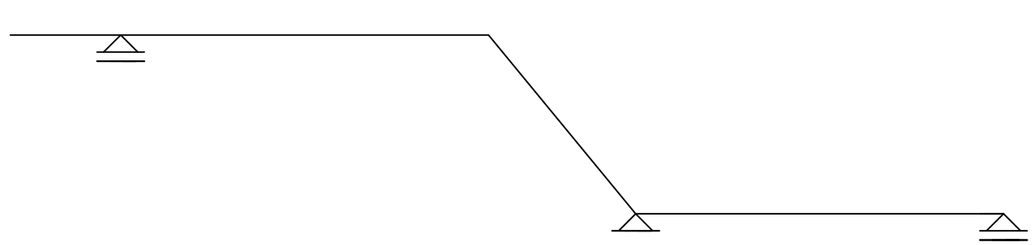
Este ejercicio puntúa sobre 10

E II

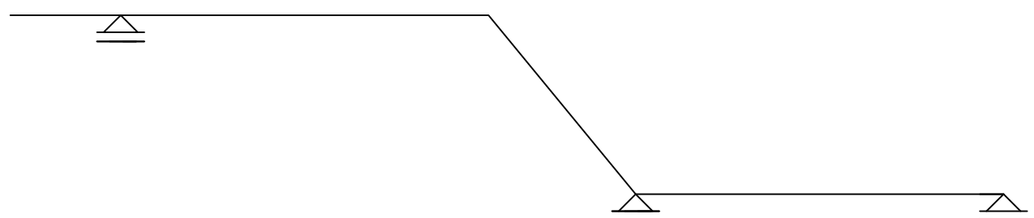


E III

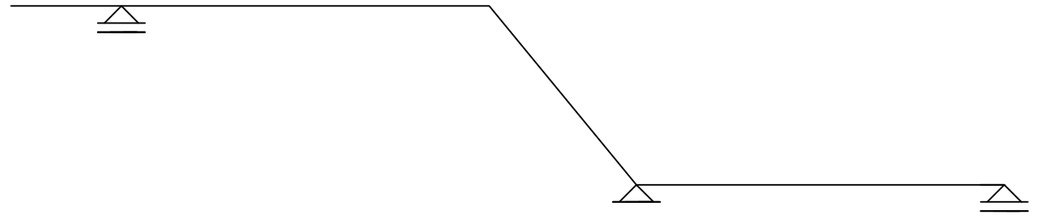
M.E.L.$_1$ = $|2\alpha|$



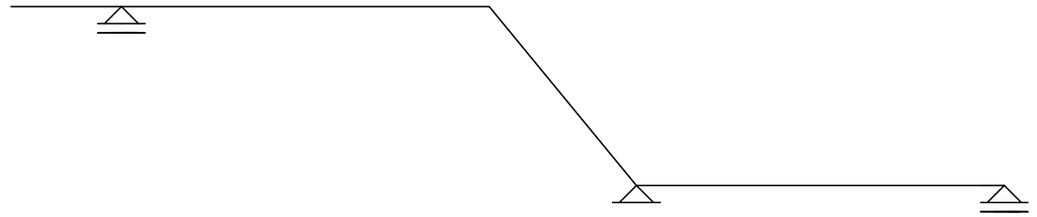
E IV



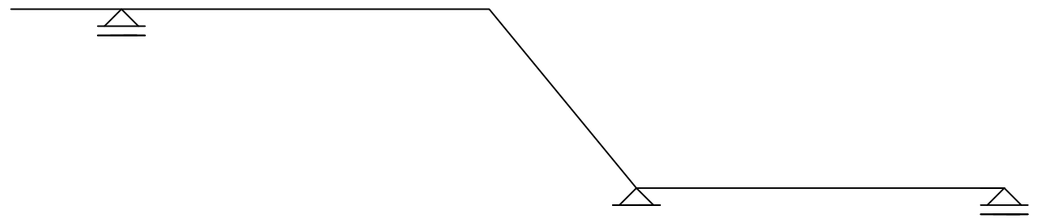
V(x)



M(x)



N(x)



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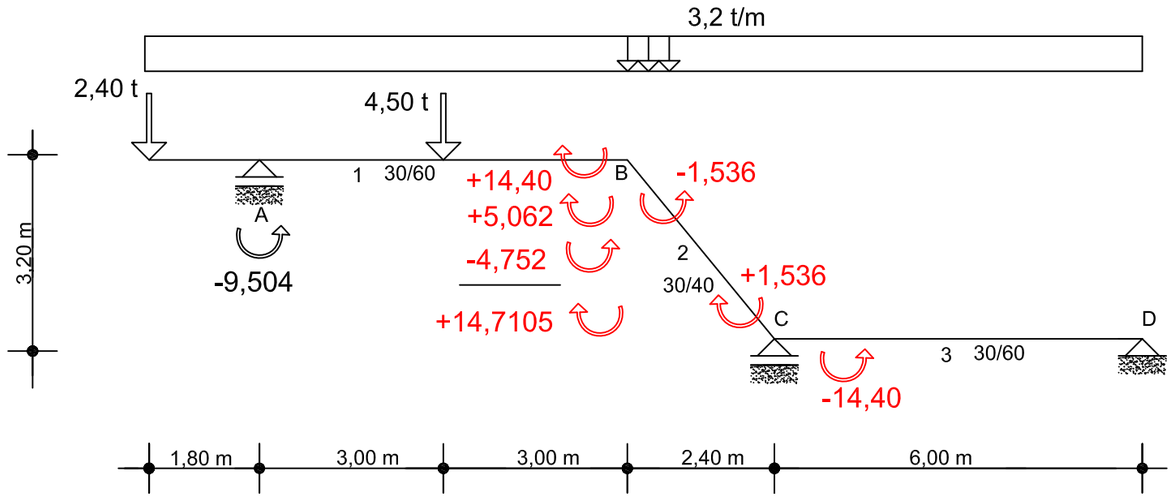
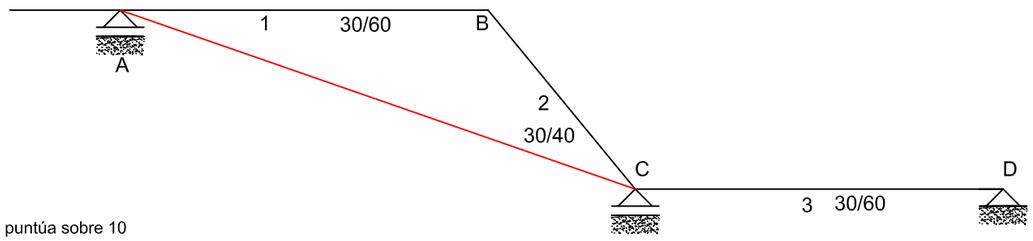


ANÁLISIS GT:1 ETAPA I : M.E.P. y factores de reparto

Barra nº	L m.	A bxh	I	K EI	M.E.P. mt Izda	Dcha
1	6	30/60	3,375I	1,6875	-6,912	+14,71
2	4	30/40	I	1	-1,54	+1,54
3	6	30/60	3,375I	1,6875	-14,4	

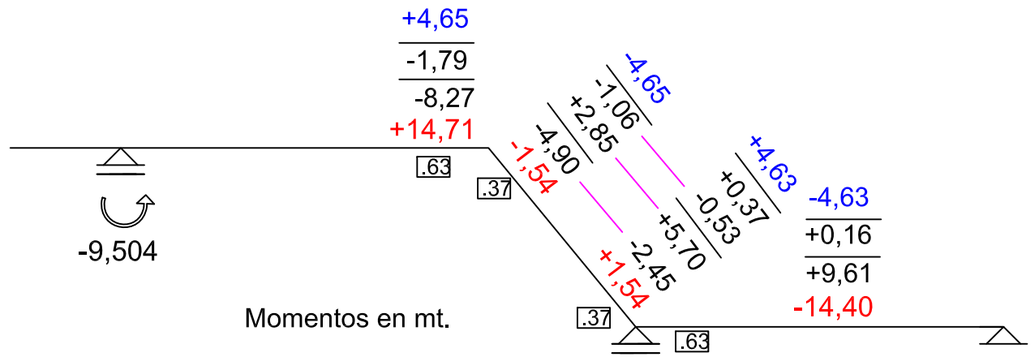
Nudo B: r1= .6279 r2 = .3721

Nudo C: r2= .3721 r3 = .6279



Este ejercicio puntúa sobre 10

E II



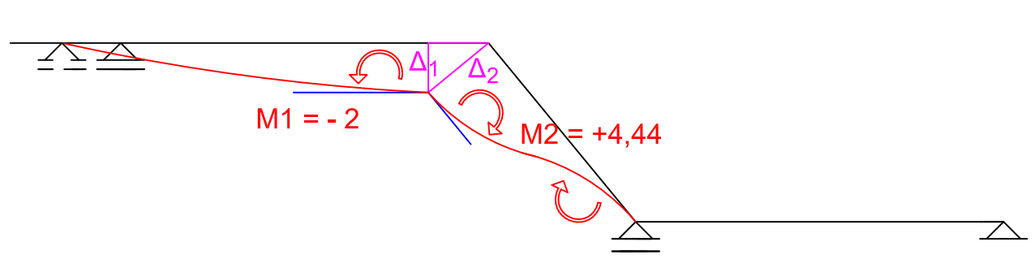
E III

M.E.L.$_1$ = $|2\alpha|$

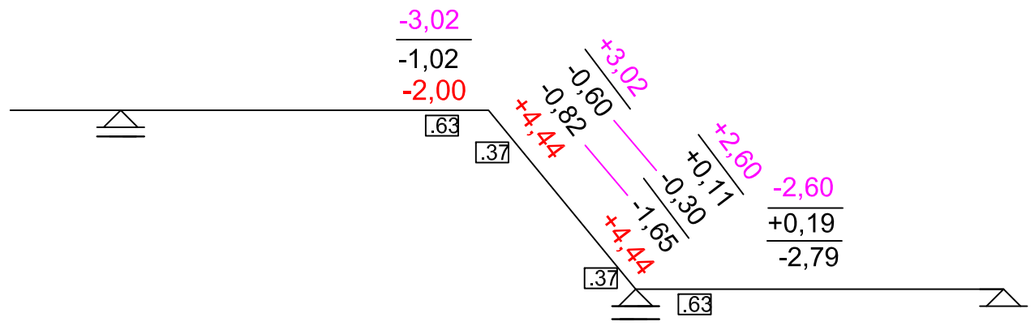
Compatibilidad de las deformaciones Δ1 = 3 Δ2 = 5

M1= - k1 * Δ1/L1= -1,6875 *3 / 6 = -0,848 <> - 2 α

M2= 1,5 k2 * Δ2/L2= 1,5*1 * 5 / 4 = 1,875 <> 4,44 α



E IV α



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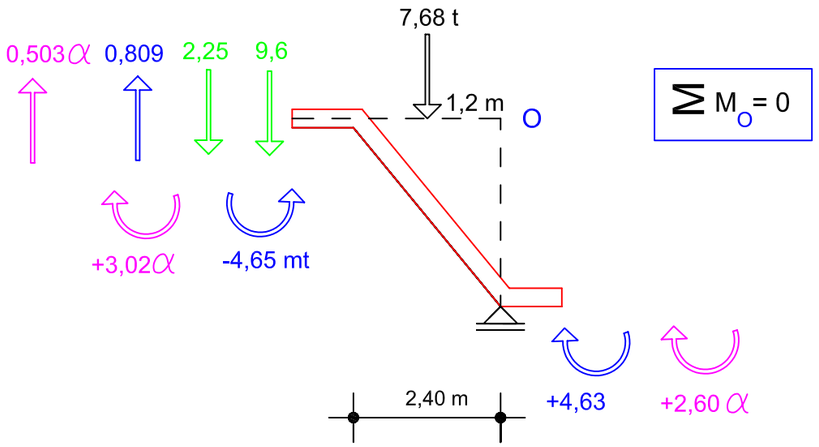
ETAPA V: Solución 1/ Ecuación equilibrio: Suma de momentos nula en O



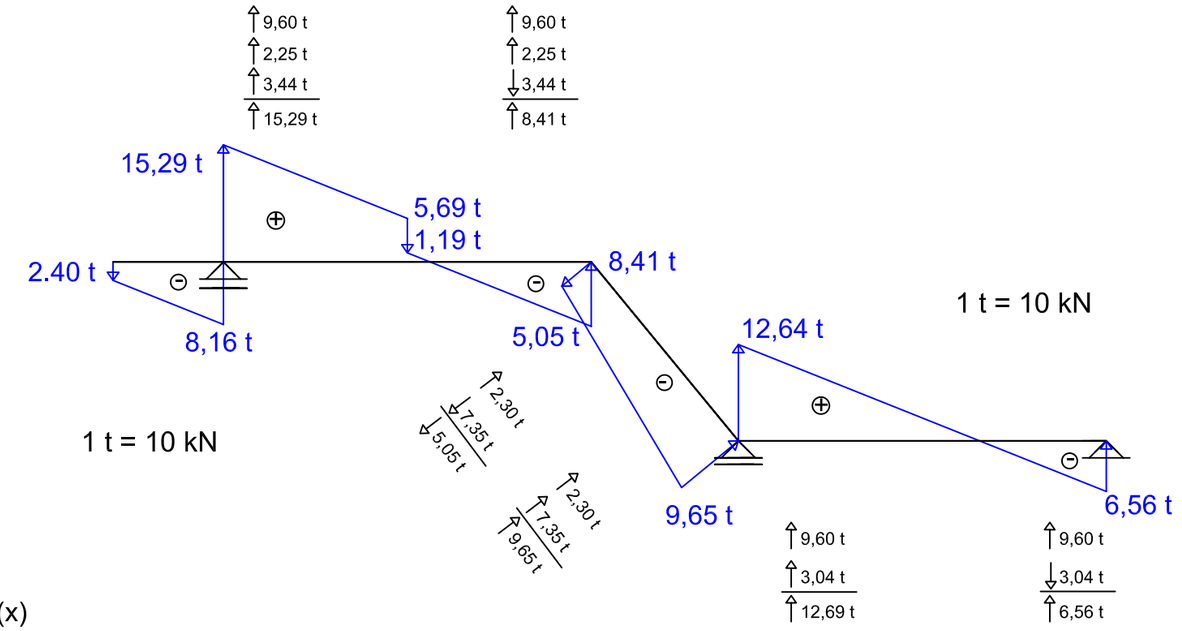
$\Sigma M_O = 0$

-4,65 -(11,85 *2,4) + (0,809 *2,4) -(7,67 *1,2) +4,63 = 35,73

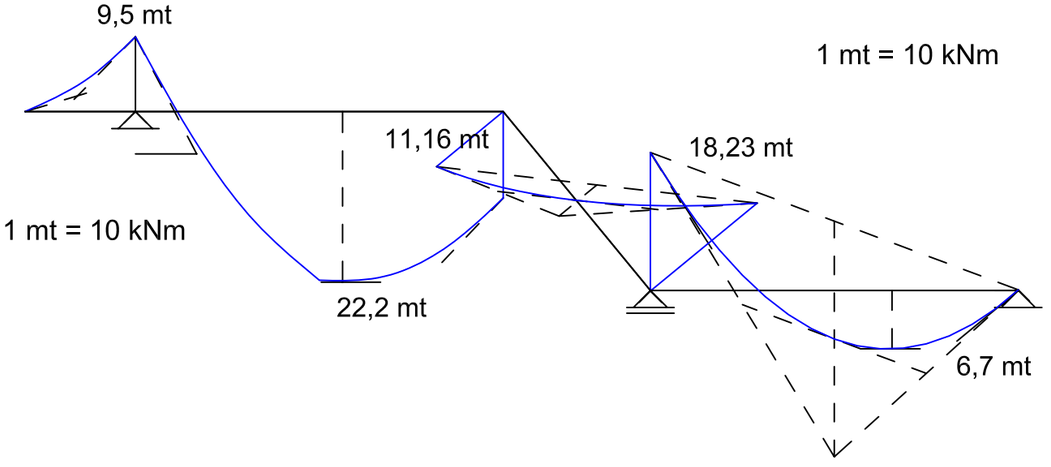
+3,02 +2,60 + (0,503 * 2,4) = 6,827 α

α = 5,23412233...

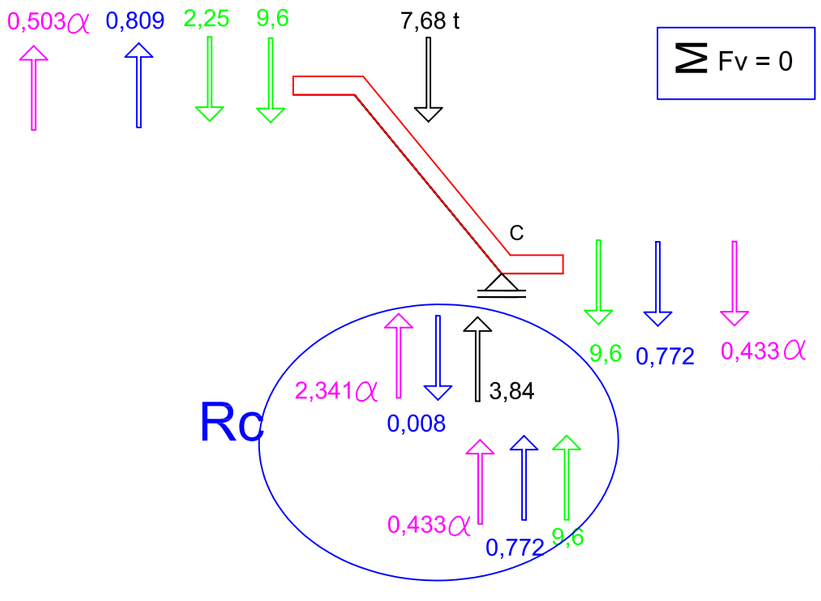
V(x)



M(x)



ETAPA V: Solución 2/ Ecuación equilibrio: Suma de fuerzas verticales nula



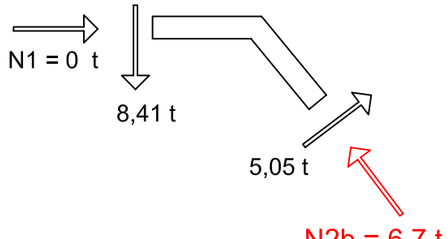
$\Sigma Fv = 0$

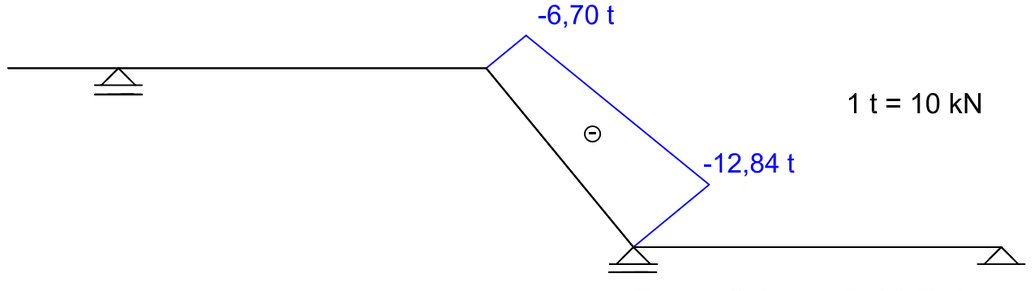
0,809 -2,25 -9,60 -7,68 +3,84 = 14,873

+0,503 +2,341 = 2,844 α

α = 5,2294889...

N(x)





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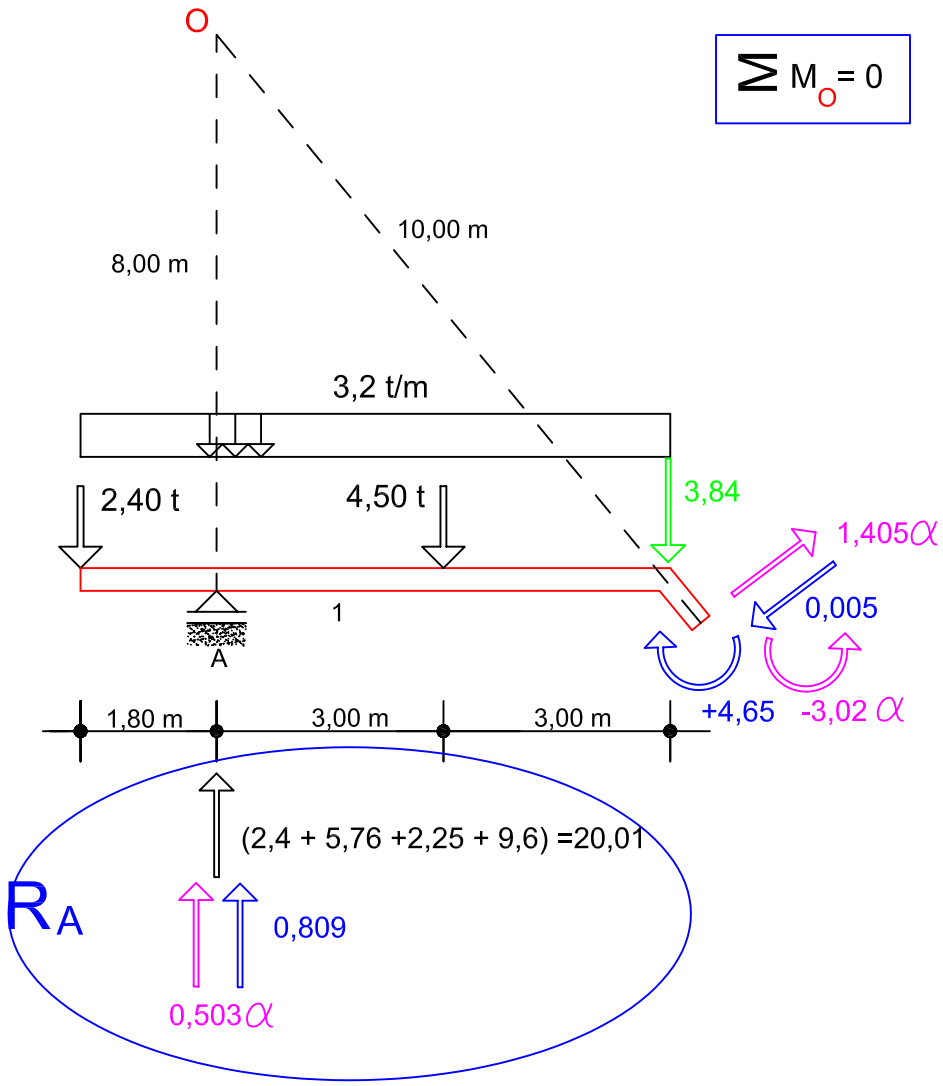
ETAPA V: Solución 3/ Ecuación equilibrio: Suma de momentos nula en O



(-2,40 *1,80) + (4,50 *3) + (24,96 *2,10) 0 (3,84 * 6) + (0,005 *10) +4,65 = 89,336

-3,02 -(1,405 *10) = 17,07 α

α = 5,233509...

Tomás Cabrera (E.U.A.T.M.)