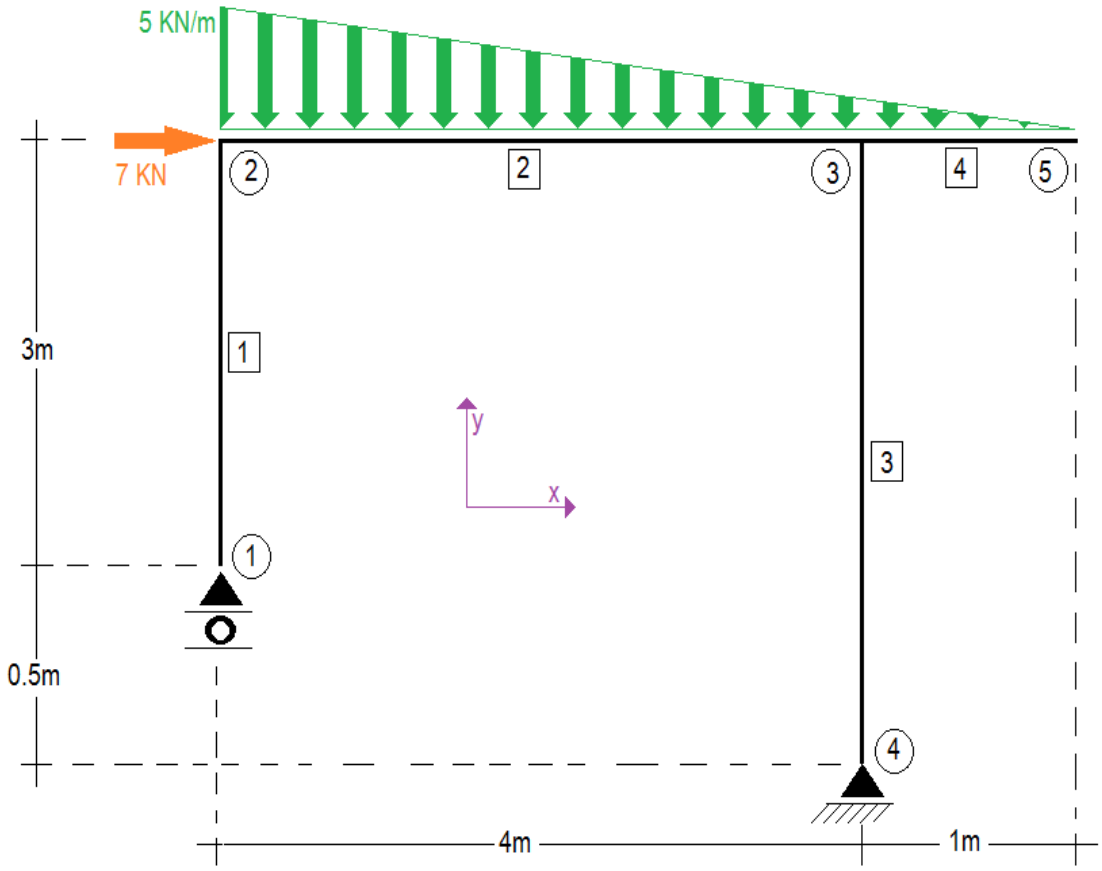
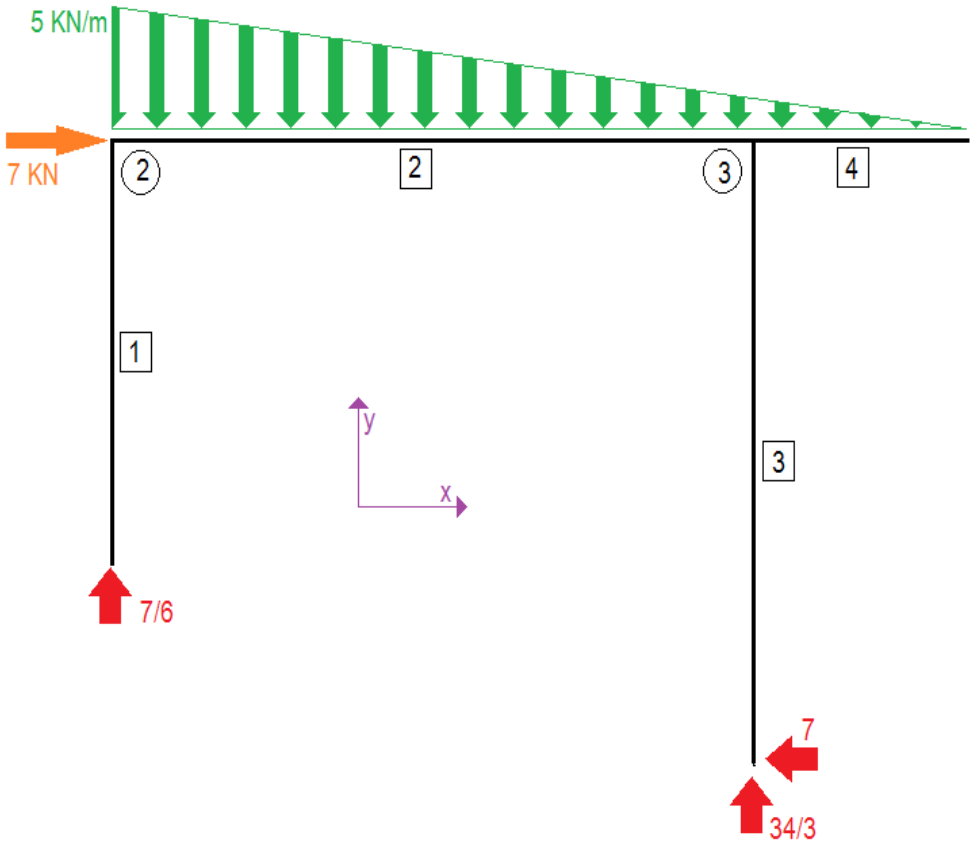

5 KN/m
7 KN
2
2
3
4
5
1
3
3m
y
x
1
4
0.5m
4m
1m


5 KN/m
7 KN
2
2
3
4
1
3
y
x
7/6
7
34/3

#1: [CaseMode := Sensitive, InputMode := Word]

Reacciones externas en los apoyos:

#2: [y1 :=, x4 :=, y4 :=]

#3:
$$\begin{bmatrix} x4 + 7 = 0 \\ y1 + y4 - \frac{5 \cdot 5}{2} = 0 \\ -7 \cdot 3 - \frac{5 \cdot 5}{2} \cdot \frac{1}{3} \cdot 5 + x4 \cdot 0.5 + y4 \cdot 4 = 0 \end{bmatrix}$$

#4:
$$\left[x4 := -7,\ y1 := \frac{7}{6},\ y4 := \frac{34}{3} \right]$$

#5: [x4 = −7 ∧ y1 = 1.166666666 ∧ y4 = 11.33333333]

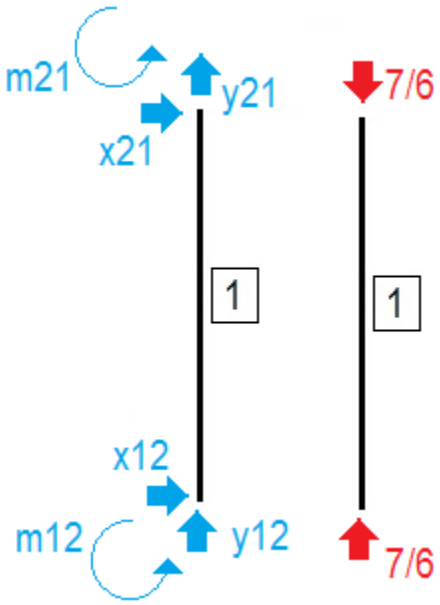
Diagramas de cuerpo libre de todos los elementos individuales:

∑ de fuerzas externas = ∑ de fuerzas internas en el nudo 1:

#6: [x12 :=, y12 :=, m12 :=]

#7: [x12 := 0, y12 := y1, m12 := 0]

∑ de fuerzas = 0 ∧ ∑ de momentos =0 en el elemento 1:



#8: [x21 :=, y21 :=, m21 :=]

#9:
$$\begin{bmatrix} x12 + x21 = 0 \\ y12 + y21 = 0 \\ m12 + m21 = 0 \end{bmatrix}$$

#10:
$$\left[m21 := 0,\ x21 := 0,\ y21 := -\frac{7}{6} \right]$$

#11: [m21 = 0 ∧ x21 = 0 ∧ y21 = −1.166666666]

∑ de fuerzas externas = ∑ de fuerzas internas en el nudo 2:

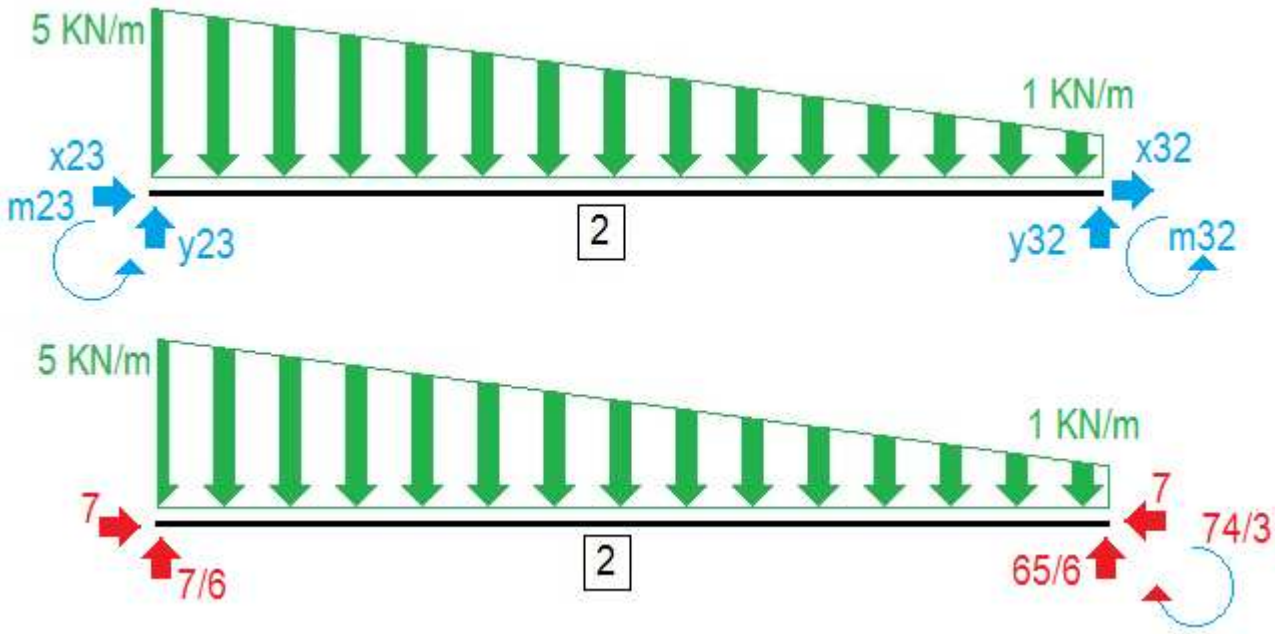
#12: [x23 :=, y23 :=, m23 :=]

#13:
$$\begin{bmatrix} x23 + x21 = 7 \\ y23 + y21 = 0 \\ m23 + m21 = 0 \end{bmatrix}$$

#14:
$$\left[m23 := 0,\ x23 := 7,\ y23 := \frac{7}{6} \right]$$

#15: [m23 = 0 ∧ x23 = 7 ∧ y23 = 1.166666666]

∑ de fuerzas = 0 ∧ ∑ de momentos =0 en el elemento 2:



#16: [x32 :=, y32 :=, m32 :=]

#17:
$$\begin{bmatrix} x32 + x23 = 0 \\ y32 + y23 - \frac{5 + 1}{2}\cdot 4 = 0 \\ m32 + m23 + y32\cdot 4 - \left(\frac{5 + 1}{2}\cdot 4\right)\cdot\left(\frac{4}{3}\cdot\frac{5 + 2\cdot 1}{5 + 1}\right) = 0 \end{bmatrix}$$

#18:
$$\left[m32 := -\frac{74}{3},\ x32 := -7,\ y32 := \frac{65}{6}\right]$$

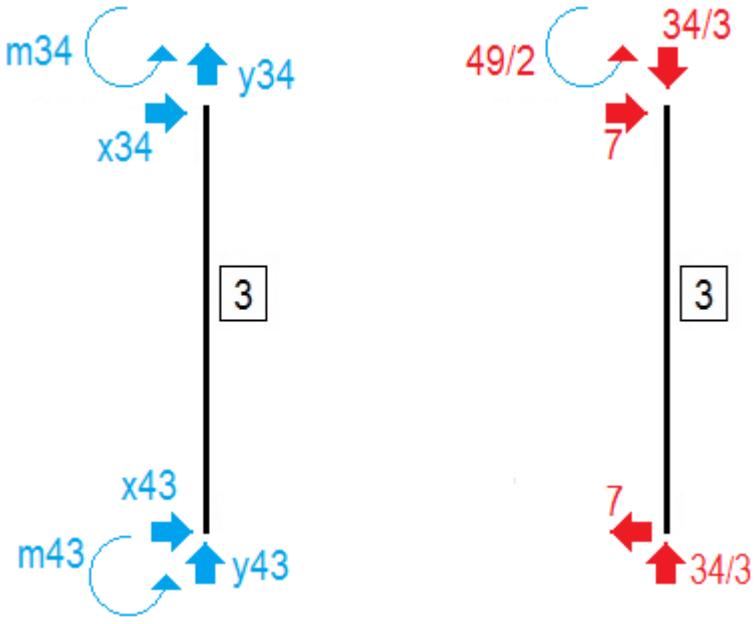
#19: [m32 = −24.66666666 ∧ x32 = −7 ∧ y32 = 10.83333333]

∑ de fuerzas externas = ∑ de fuerzas internas en el nudo 4:

#20: [x43 :=, y43 :=, m43 :=]

#21: [x43 := x4, y43 := y4, m43 := 0]

∑ de fuerzas = 0 ∧ ∑ de momentos =0 en el elemento 3:



#22: [x34 :=, y34 :=, m34 :=]

#23:
$$\begin{bmatrix} x34 + x43 = 0 \\ y34 + y43 = 0 \\ m34 + m43 + x43\cdot 3.5 = 0 \end{bmatrix}$$

#24:
$$\left[m34 := \frac{49}{2},\ x34 := 7,\ y34 := -\frac{34}{3}\right]$$

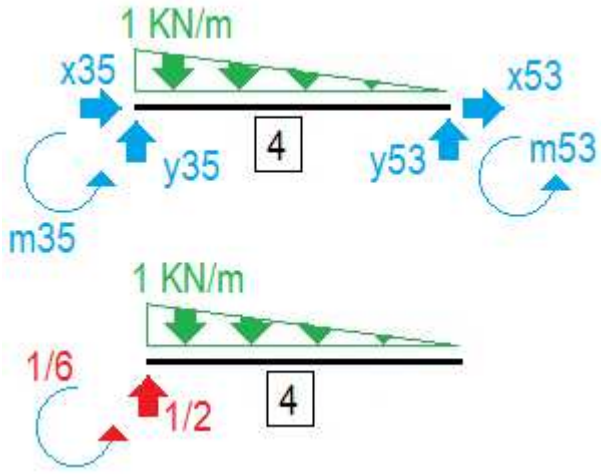
#25: [m34 = 24.5 ∧ x34 = 7 ∧ y34 = −11.33333333]

∑ de fuerzas externas = ∑ de fuerzas internas en el nudo 5:

#26: [x53 :=, y53 :=, m53 :=]

#27: [x53 := 0, y53 := 0, m53 := 0]

∑ de fuerzas = 0 ∧ ∑ de momentos =0 en el elemento 4:



#28: [x35 :=, y35 :=, m35 :=]

#29:
$$\left[\begin{array}{c} x35 + x53 = 0 \\ y35 + y53 - \frac{1 \cdot 1}{2} = 0 \\ m35 + m53 + y53 \cdot 1 - \frac{1 \cdot 1}{2} \cdot \frac{1}{3} \cdot 1 = 0 \end{array}\right]$$

#30:
$$\left[m35 := \frac{1}{6},\ x35 := 0,\ y35 := \frac{1}{2}\right]$$

#31: [m35 = 0.1666666666 ∧ x35 = 0 ∧ y35 = 0.5]

CHEQUEO: ∑ de fuerzas externas = ∑ de fuerzas internas en el nudo 3:

#32: [x32 + x35 + x34 = 0, y32 + y35 + y34 = 0, m32 + m35 + m34 = 0]

#33: [true, true, true]