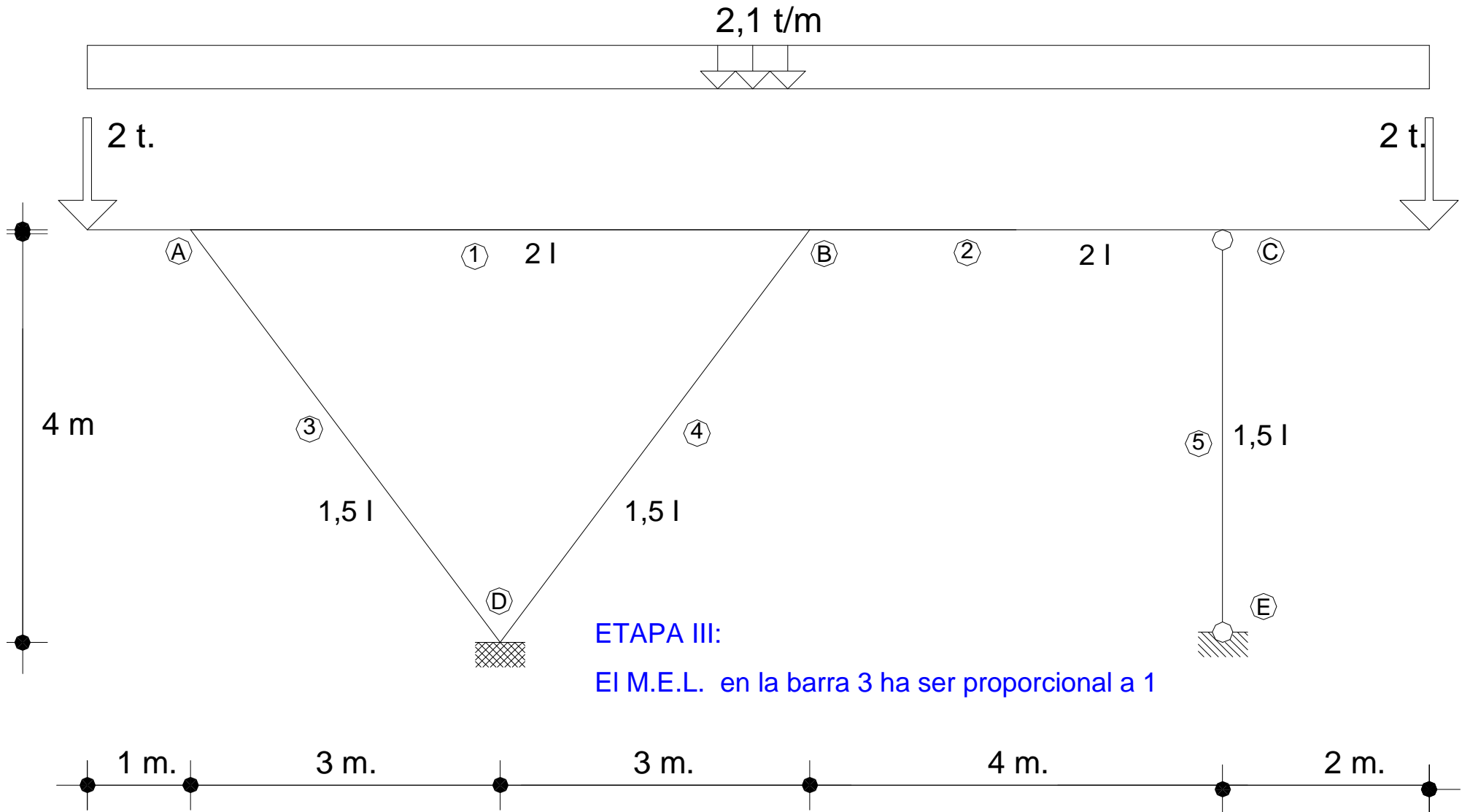


nº 1

Final junio 17/ 06/ 2009



ETAPA III:

El M.E.L. en la barra 3 ha ser proporcional a 1

n° 1

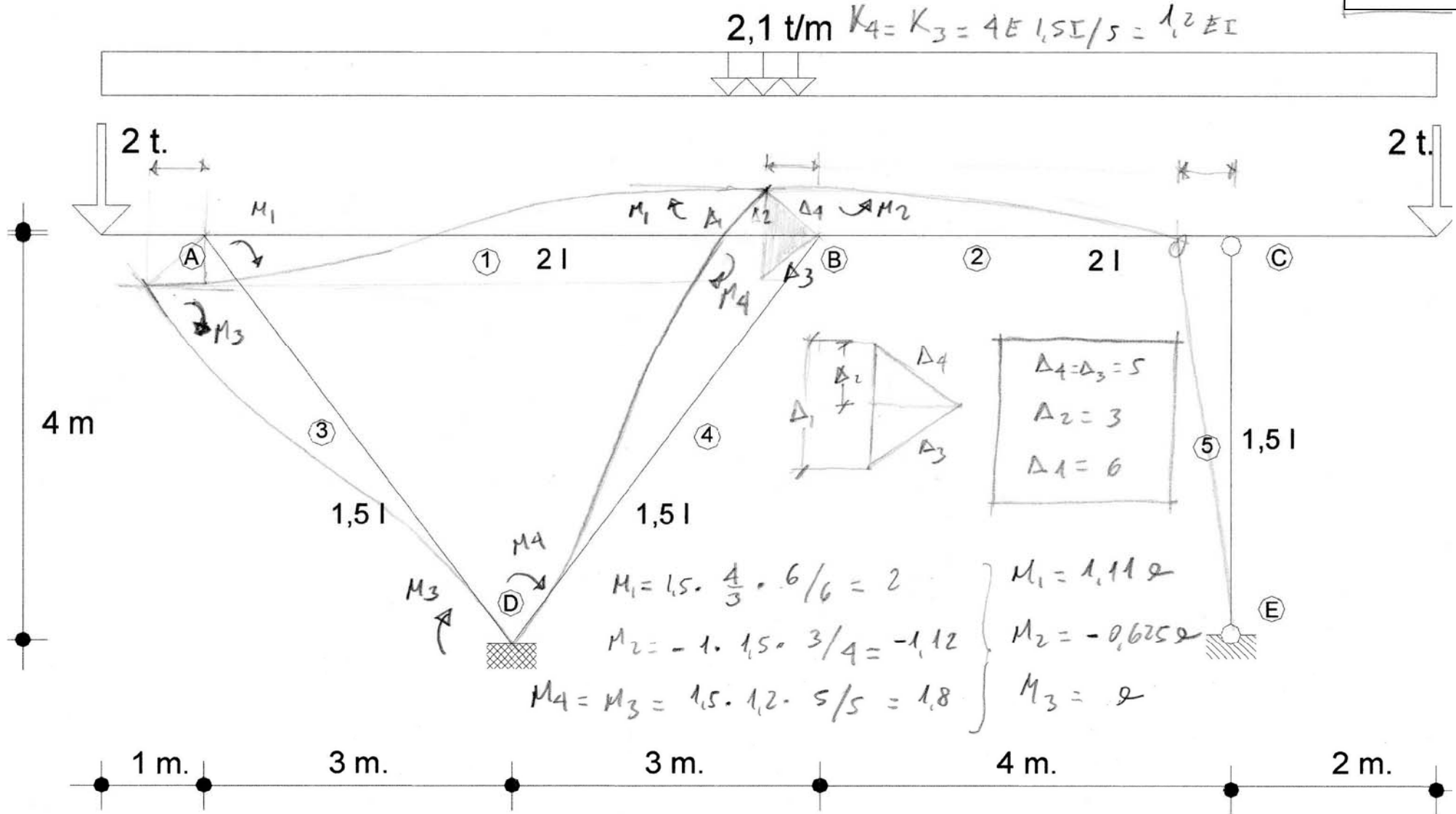
Final junio 17/ 06/ 2009

$$K_1 = 4E 2I / c = 4/3 EI$$

$$K_2 = 3E 2I / 4 = 1,5 EI$$

$$K_4 = K_3 = 4E 1,5I / 5 = 1,2 EI$$

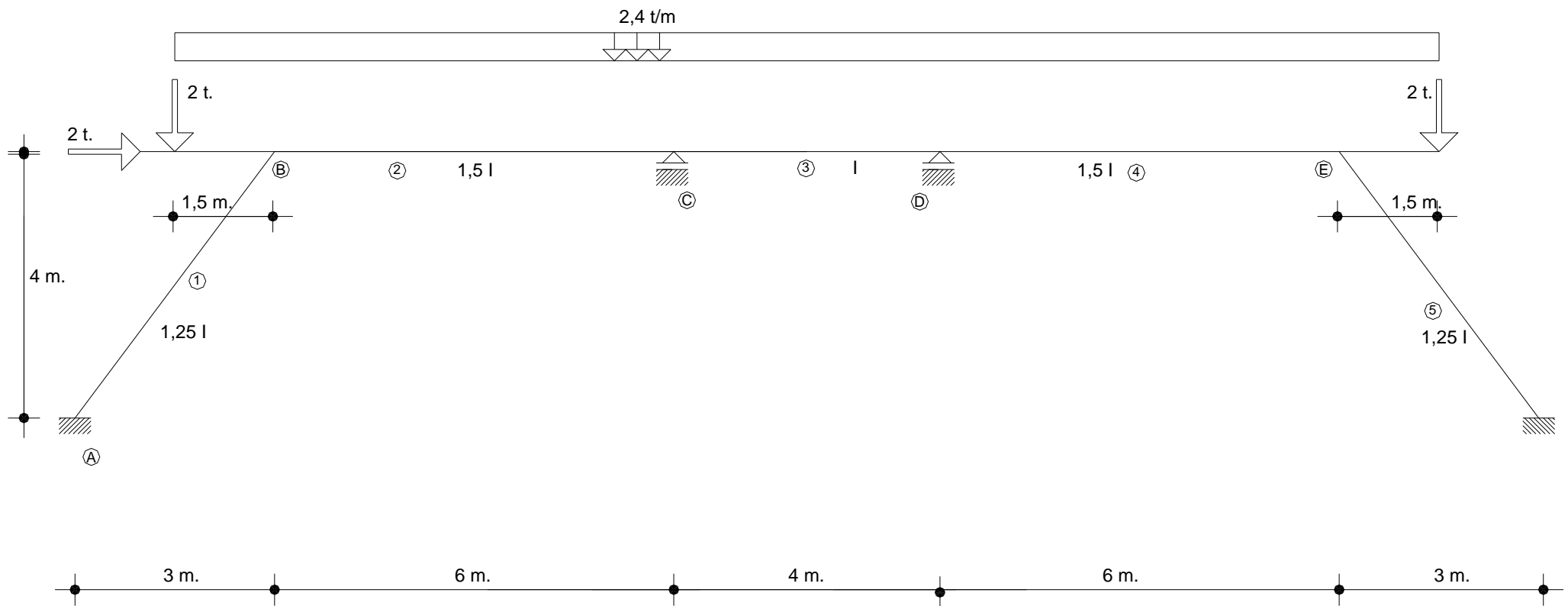
$M_3 \sim 1$



$$G_T = \frac{2(5) - 4 - 5}{2m - \sqrt{-b}} = 1$$

nº 2

Final septiembre 11/ 09/ 2008



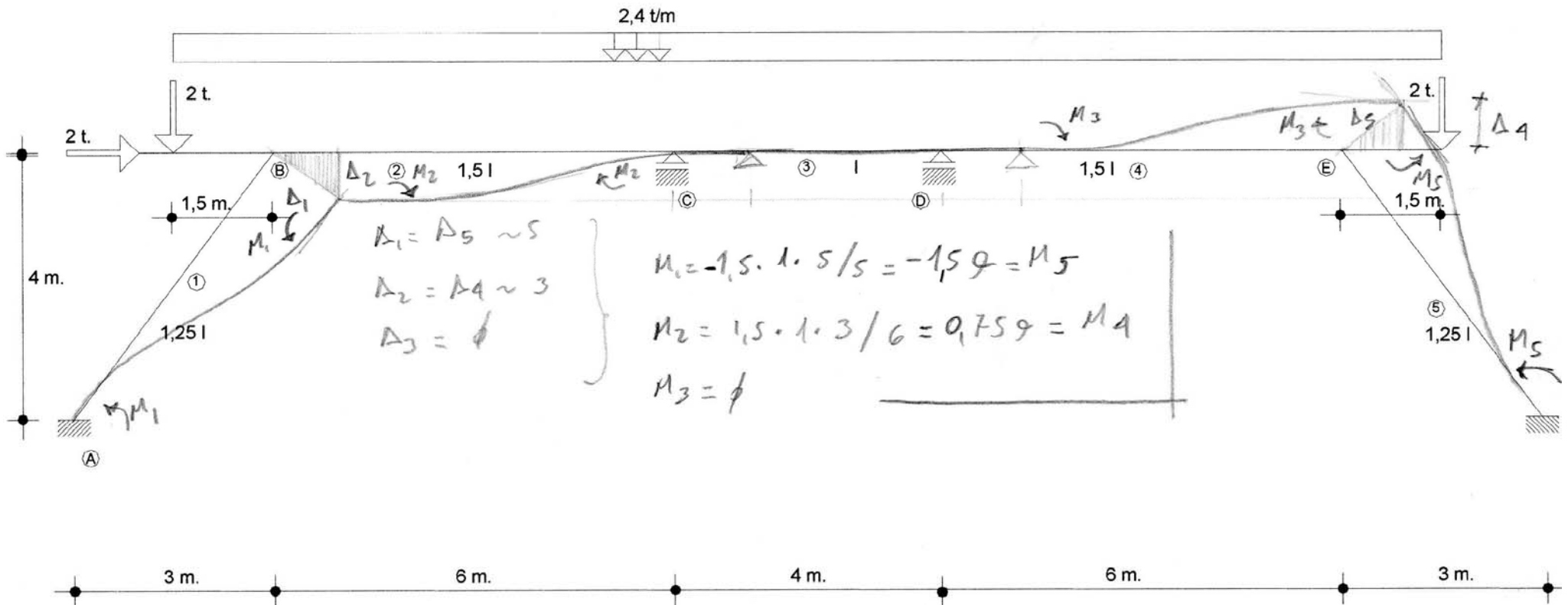
nº 2

Final septiembre 11/09/2008

$$K_5 = K_1 = 4E \cdot 1,25I / 5 = 1EI$$

$$K_2 = K_4 = 4E \cdot 1,5I / 6 = 1EI$$

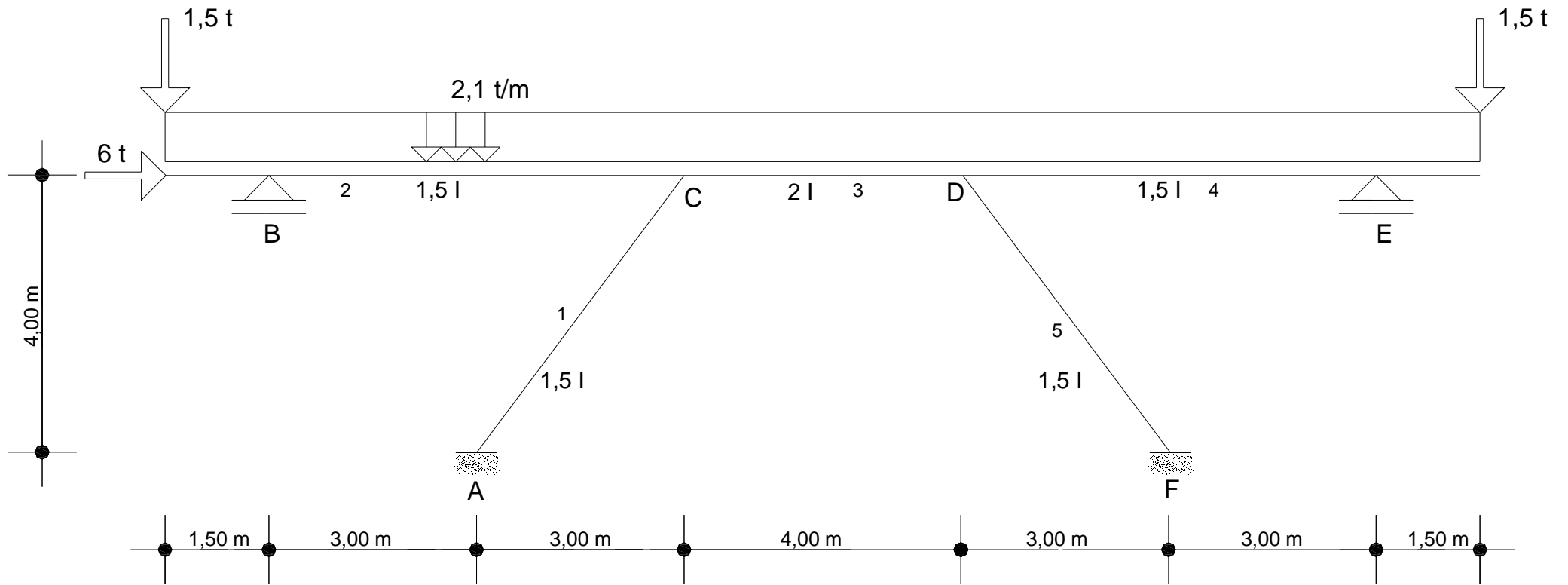
$$K_3 = 4EI / 4 = 1EI$$



$$G_T = 2m - \sqrt{-b} = 2(0) - 6 - 5 = \underline{\underline{1}}$$

nº 3

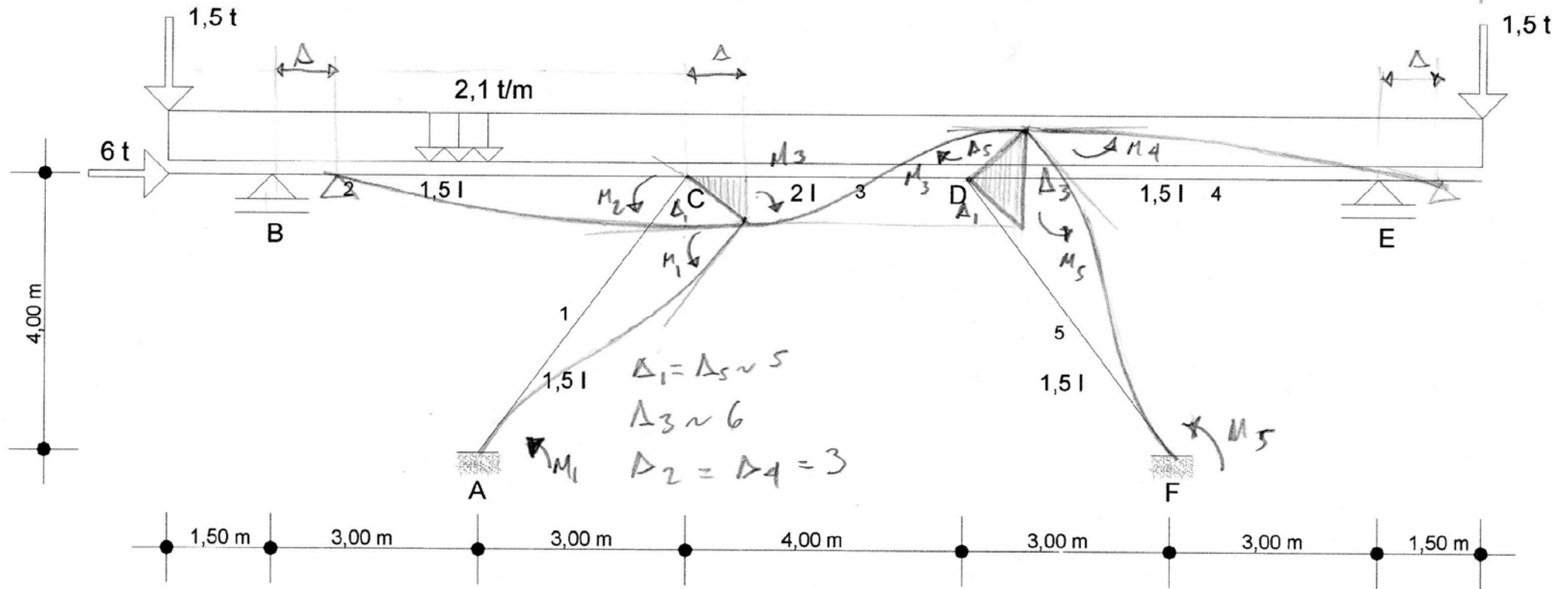
Final diciembre 12/ 12/ 2008



nº 3

Final diciembre 12/ 12/ 2008

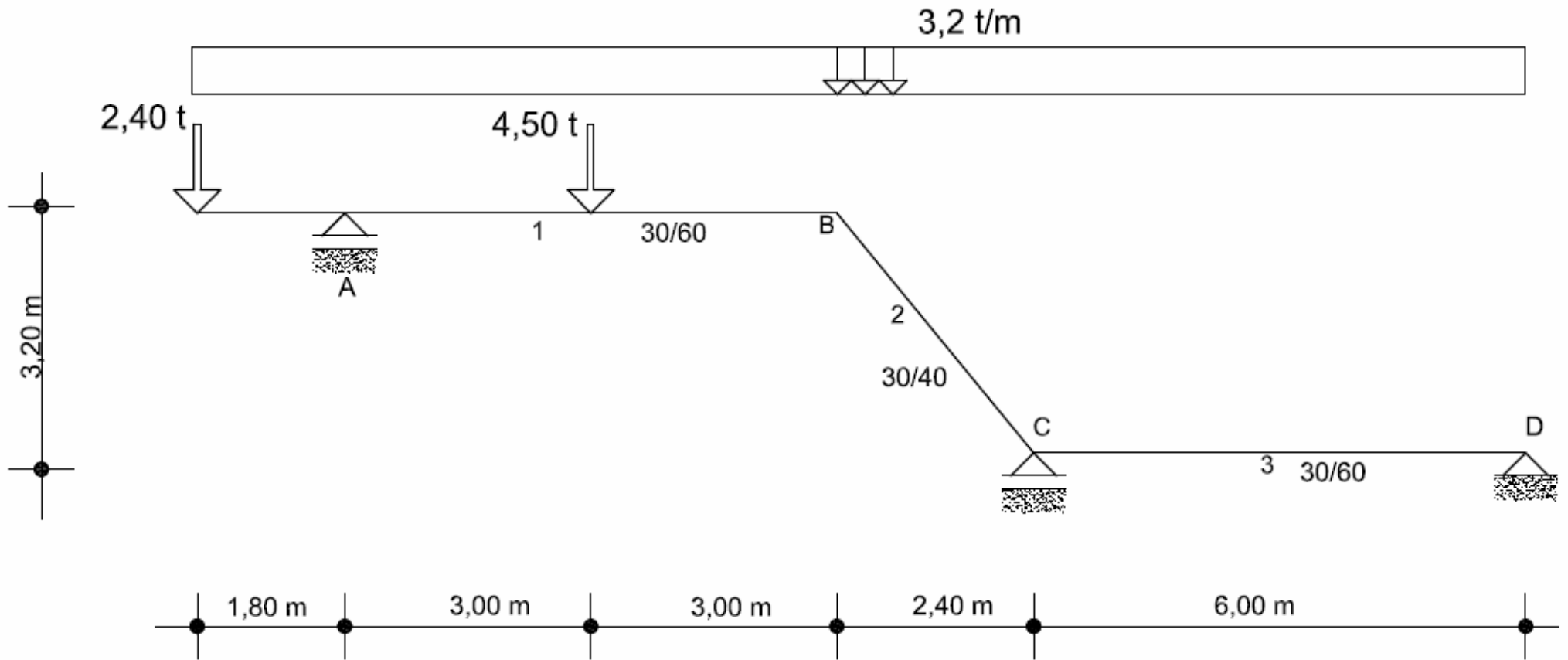
$$\begin{aligned}
 K_5 = K_1 &= 4E \cdot 1,5I / 5 = 1,2EI & M_1 &= -1,5 \cdot 1,2 \cdot 5 / 5 = -1,8 \varrho = M_5 \\
 K_9 = K_2 &= 3E \cdot 1,5I / 6 = 0,75EI & M_2 &= -1 \cdot 0,75 \cdot 3 / 6 = -0,375 \varrho = M_4 \\
 K_3 &= 4E \cdot 2I / 4 = 2EI & M_3 &= +1,5 \cdot 2 \cdot 6 / 4 = +4,5 \varrho
 \end{aligned}$$



$$GT = 2m - v - b = 2(6) - 6 - 5 = \underline{1}$$

n° 4

Parcial 07/ 02/ 2008

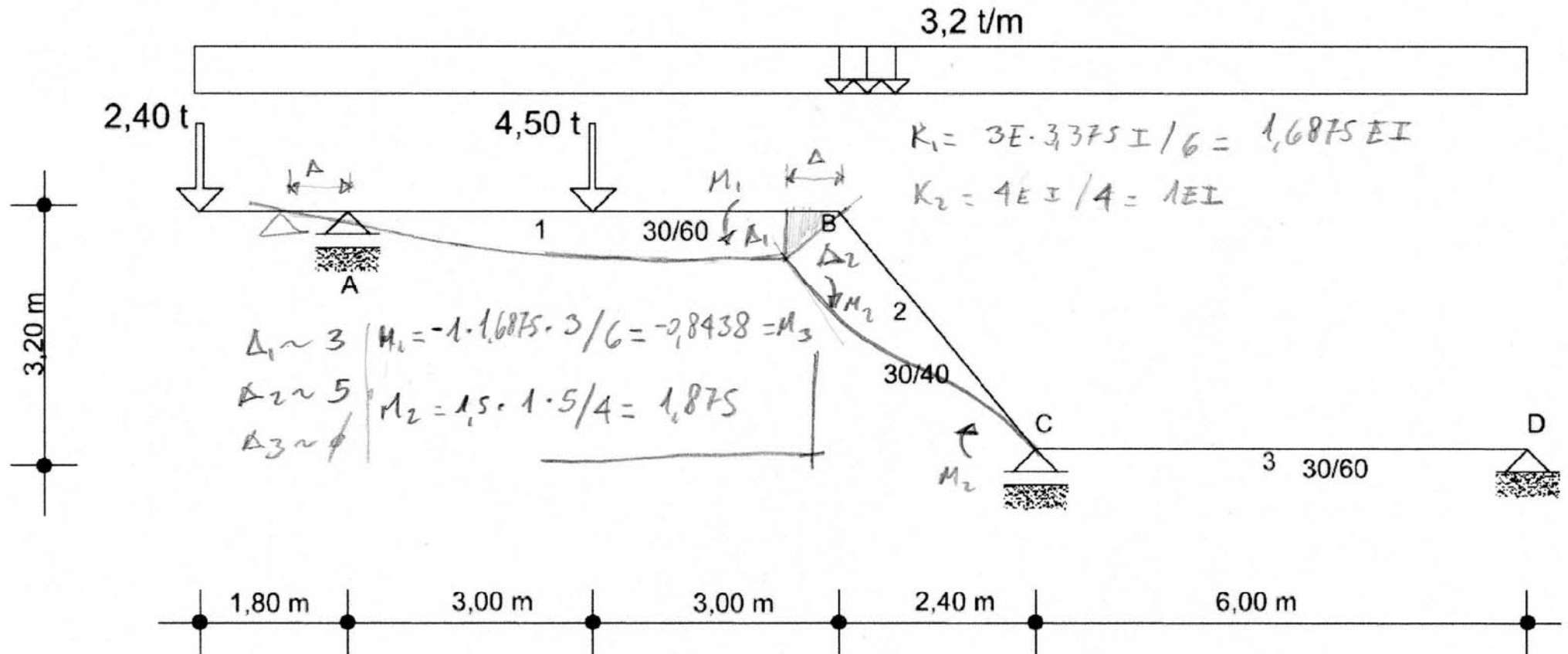


n° 4

Parcial 07/ 02/ 2008

$$I_1 = I_3 = (1,5)^2 I = 3,375 I$$

$$I_2 = I$$

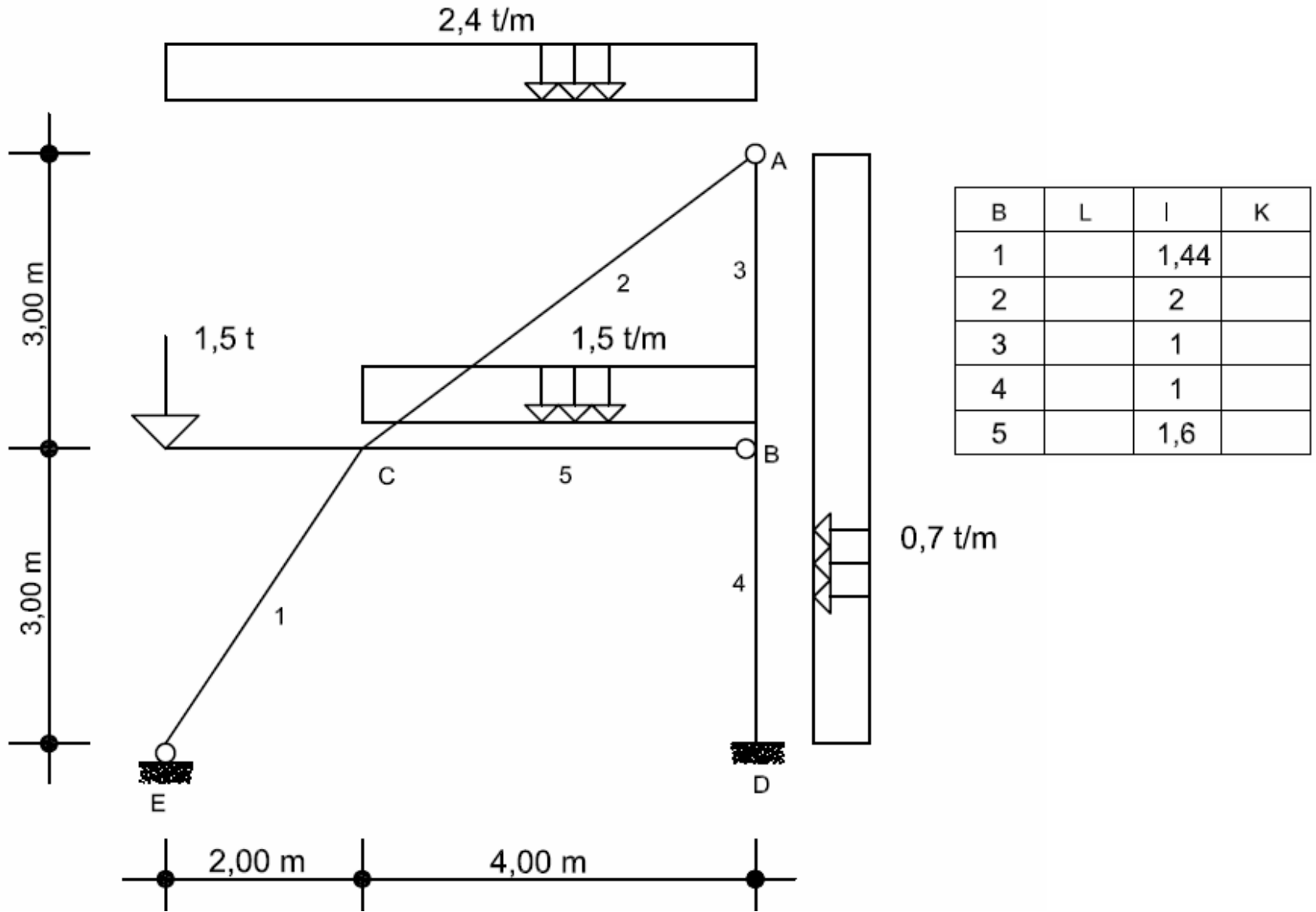


nº 5

Junio 27/ 06/ 2008

ETAPA III

La proporcionalidad entre los desplazamientos debe hacerse gráficamente.
El momento de empotramiento local en la barra 1 ha de ser proporcional a 1

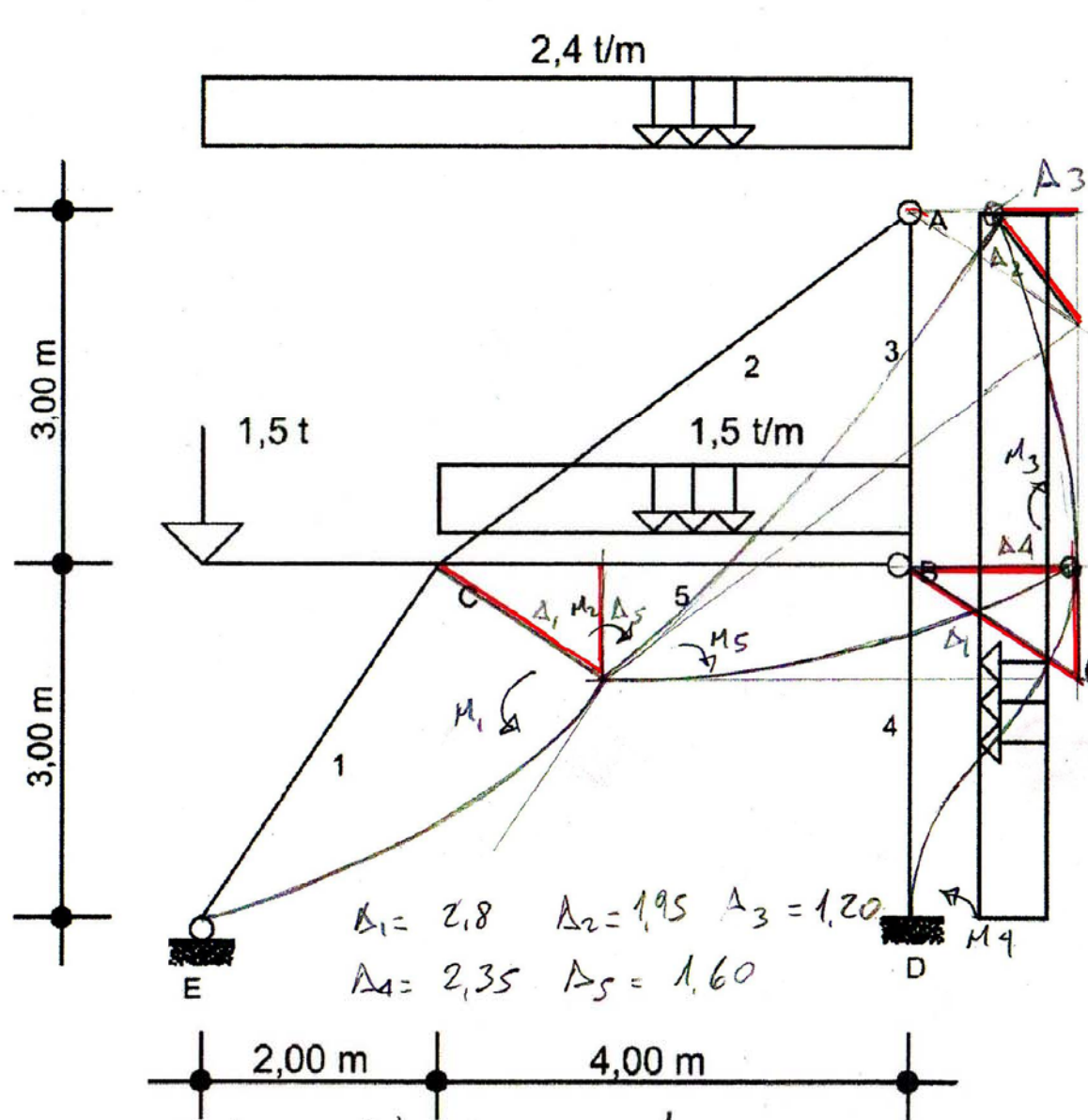


n° 5

Junio 27/ 06/ 2008

ETAPA III

La proporcionalidad entre los desplazamientos debe hacerse gráficamente.
El momento de empotramiento local en la barra 1 ha de ser proporcional a 1



$$K_1 = 3E \cdot 1.44I / \sqrt{13} = 1.1982E$$

$$K_2 = 3E \cdot 2I / 5 = 1.2EI$$

$$K_3 = 3E \cdot 1I / 3 = 1EI$$

$$K_4 = 4E \cdot 1I / 3 = 4/3EI$$

$$K_5 = 3E \cdot 1.6I / 4 = 1.2EI$$

$$\Delta_1 = 2.8 \quad \Delta_2 = 1.95 \quad \Delta_3 = 1.20$$

$$\Delta_4 = 2.35 \quad \Delta_5 = 1.60$$

$$M_1 = -1 \cdot 1.1982 \cdot 2.8 / \sqrt{13} = -0.9312$$

$$M_2 = 1 \cdot 1.2 \cdot 1.95 / 5 = 0.4680$$

$$M_3 = 1 \cdot 1 \cdot 1.2 / 3 = 0.4000$$

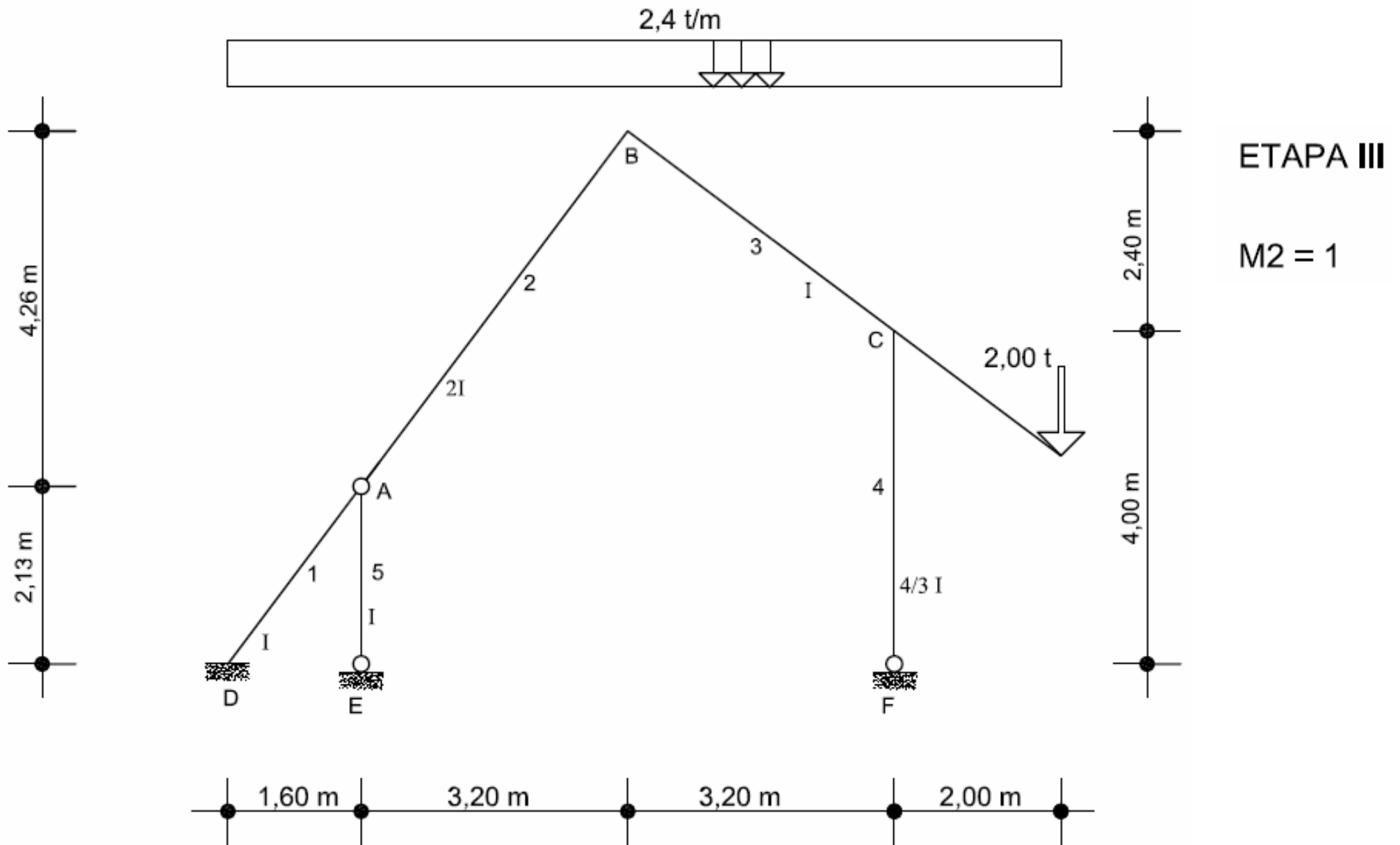
$$M_4 = -1.5 \cdot 4/3 \cdot 2.35 / 3 = -1.5670$$

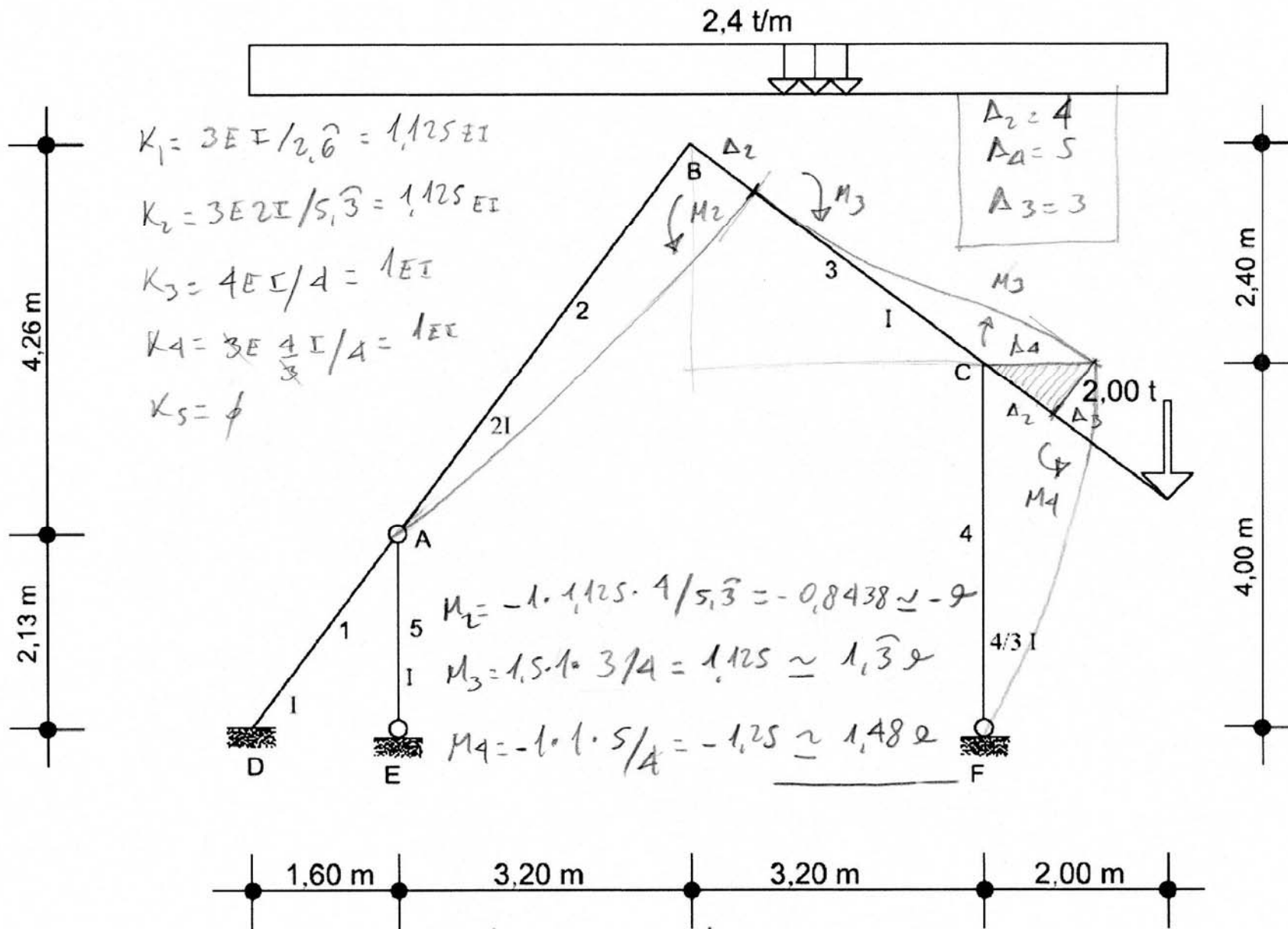
$$M_5 = 1 \cdot 1.2 \cdot 1.6 / 4 = 0.4800$$

$$G/T = 2m - v - b = 2(5) - 4 - 5 = 1$$

nº 6

Diciembre 14/ 12/ 2007





$G_T = 2m - \sqrt{-b} = 2(6) - 6 - 5 = 1$

nº 7

Septiembre 11/ 09/ 2007

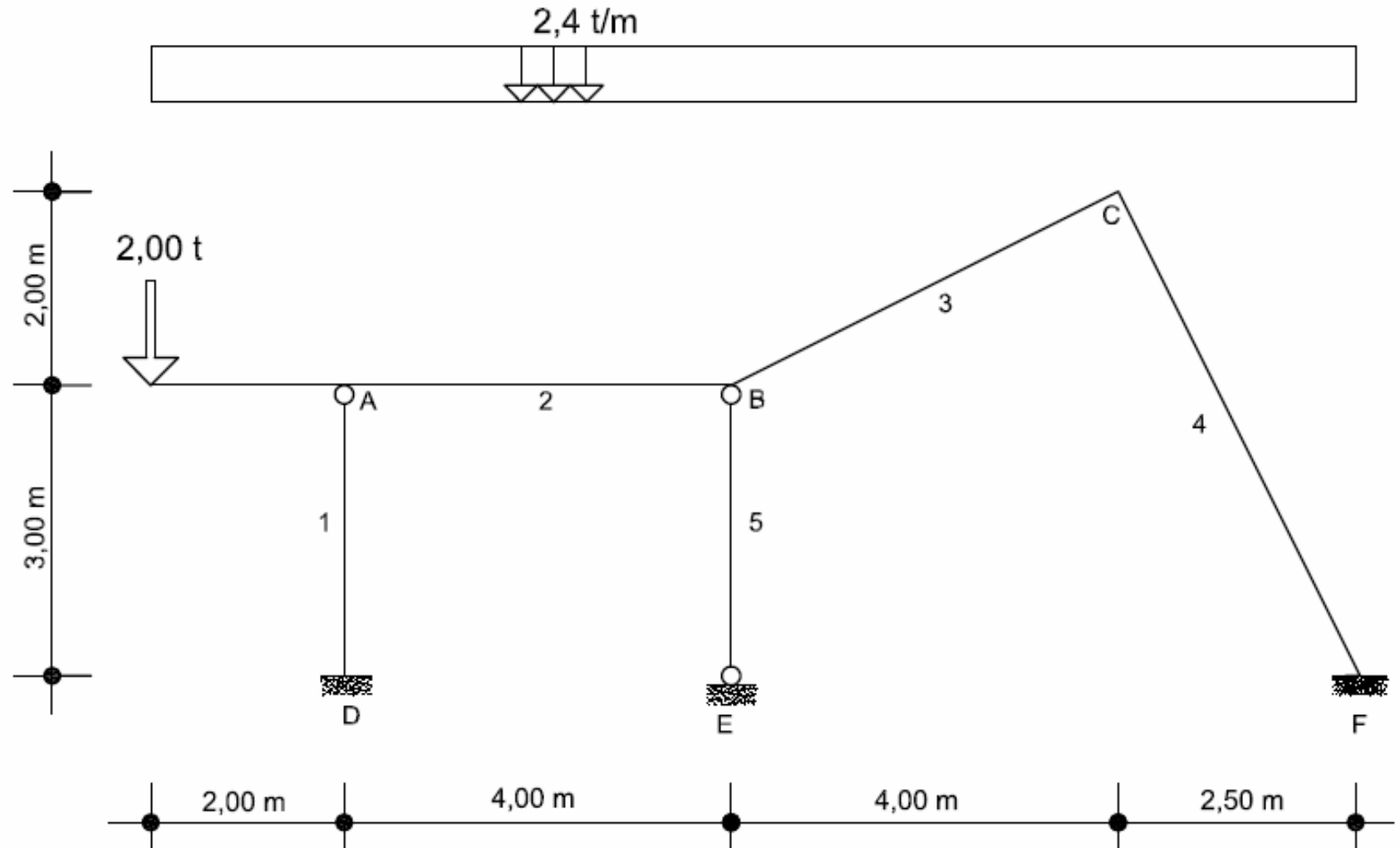
ETAPA III

DATOS:

$$K_2 = K_3 = K_4 = 1 EI$$

$$I_1 = I_5 = 1 I$$

$$M_3 = 1$$



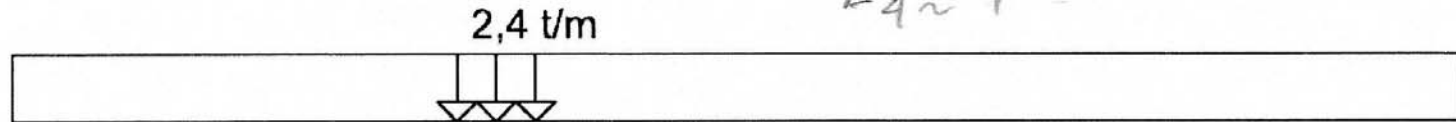
DATOS:

$K_2 = K_3 = K_4 = 1 EI$

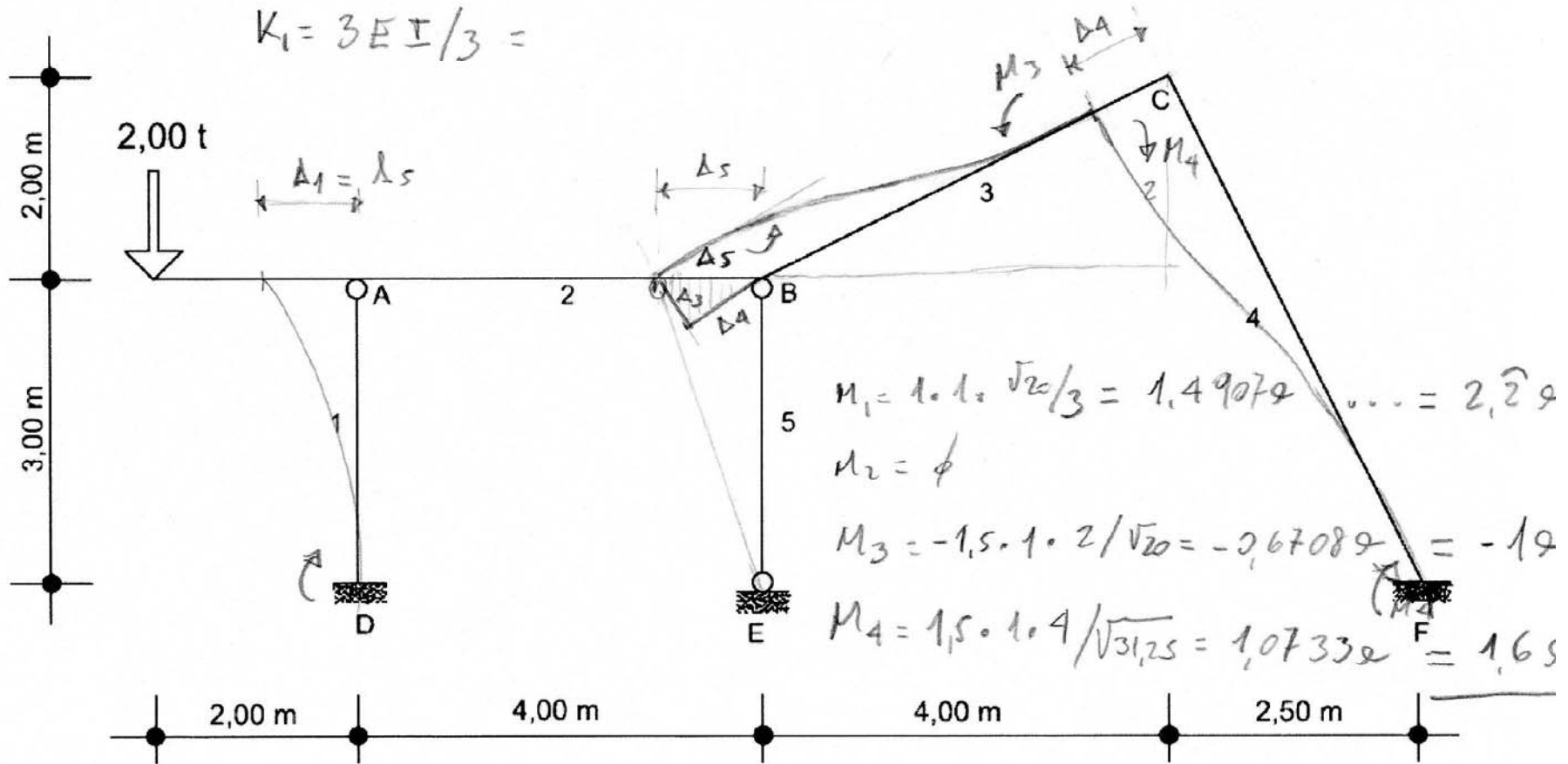
$I_1 = I_5 = I$

$\Delta_5 = \Delta_1 \sim \sqrt{20}$
 $\Delta_2 \sim 2$
 $\Delta_4 \sim 4$

$M_3 = 1$



$K_1 = 3EI/3 =$

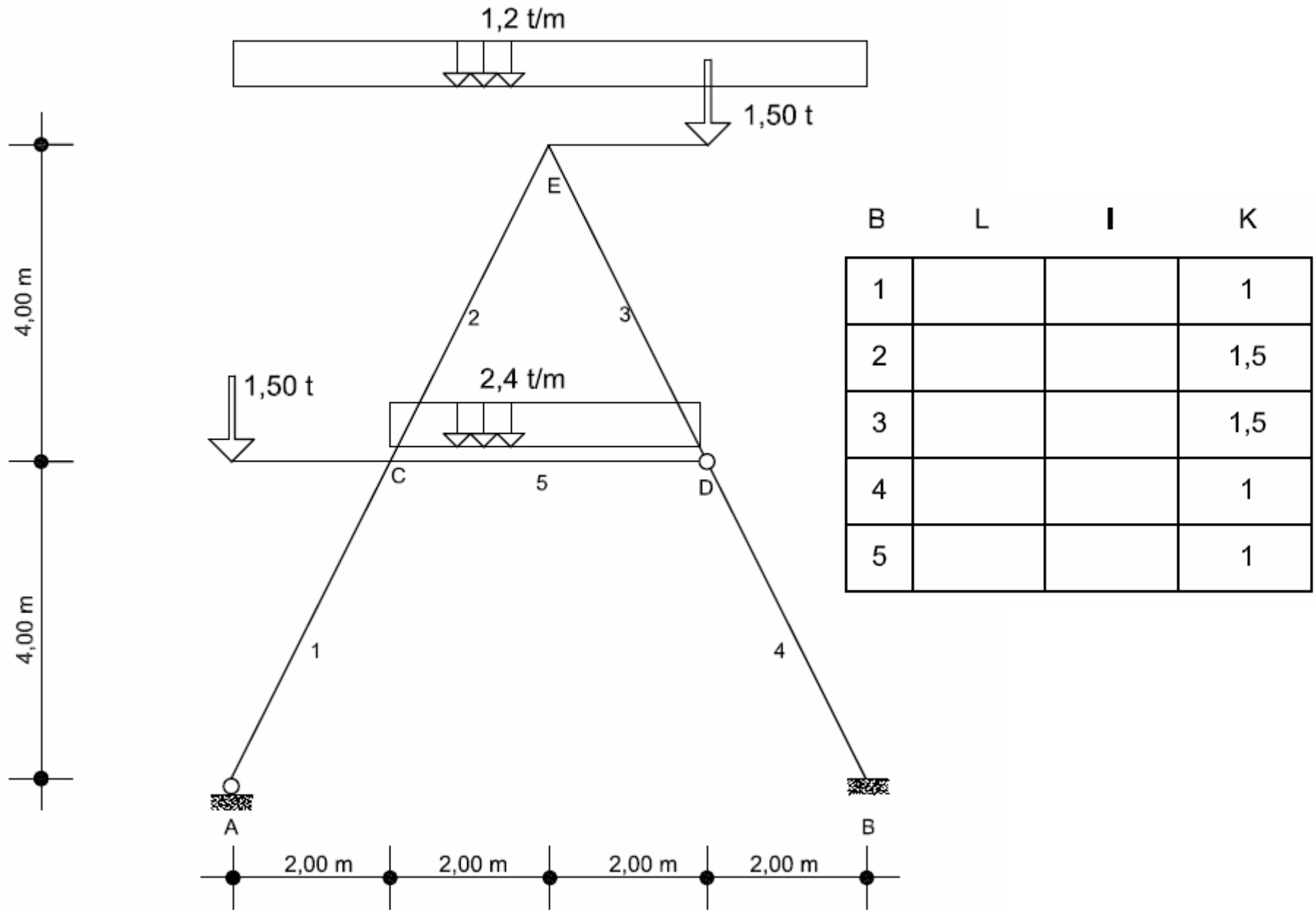


$M_1 = 1 \cdot 1 \cdot \sqrt{20}/3 = 1.49079 \dots = 2.29$
 $M_2 = \phi$
 $M_3 = -1.5 \cdot 1 \cdot 2/\sqrt{20} = -0.67089 = -1.9$
 $M_4 = 1.5 \cdot 1 \cdot 4/\sqrt{31.25} = 1.07332 = 1.65$

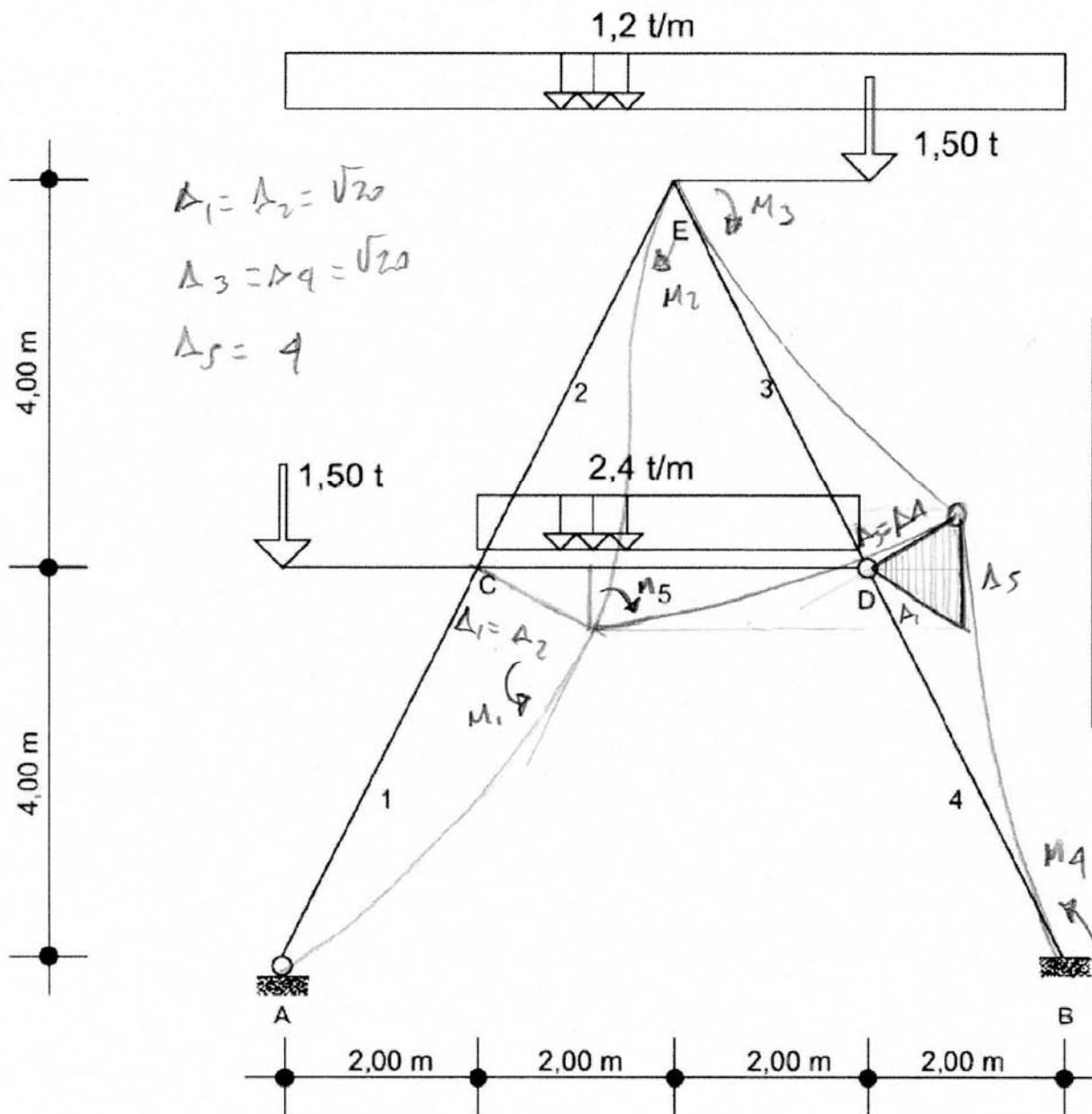
$G_T = 2(6) - 6 - 5 = 1$

n° 8

Junio 28/ 06/ 2007



	B	L	I	K
1				1
2				1,5
3				1,5
4				1
5				1



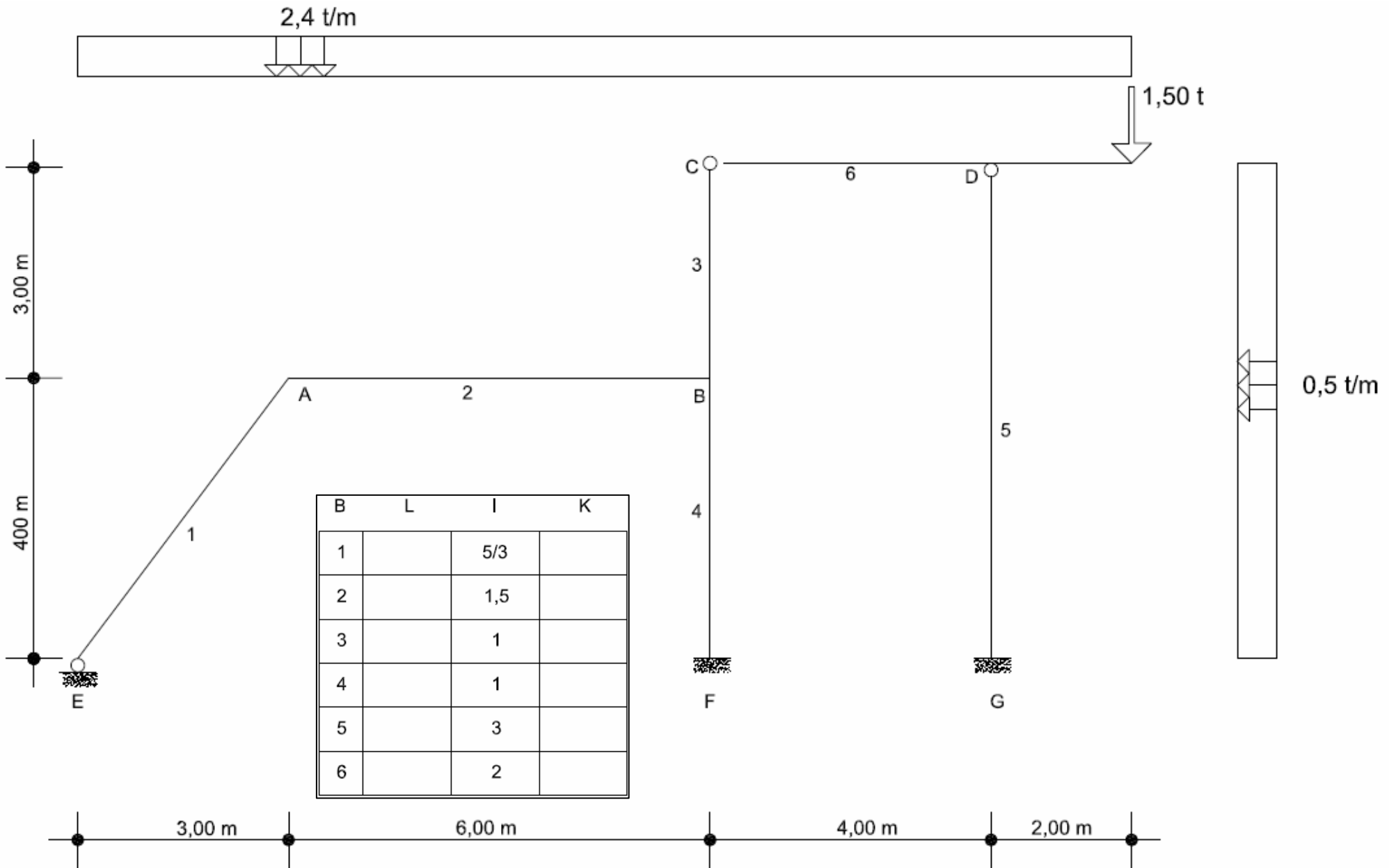
$\Delta_1 = \Delta_2 = \sqrt{20}$
 $\Delta_3 = \Delta_4 = \sqrt{20}$
 $\Delta_5 = 4$

	B	L	I	K
1		$\sqrt{20}$		1
2				1,5
3				1,5
4				1
5				1

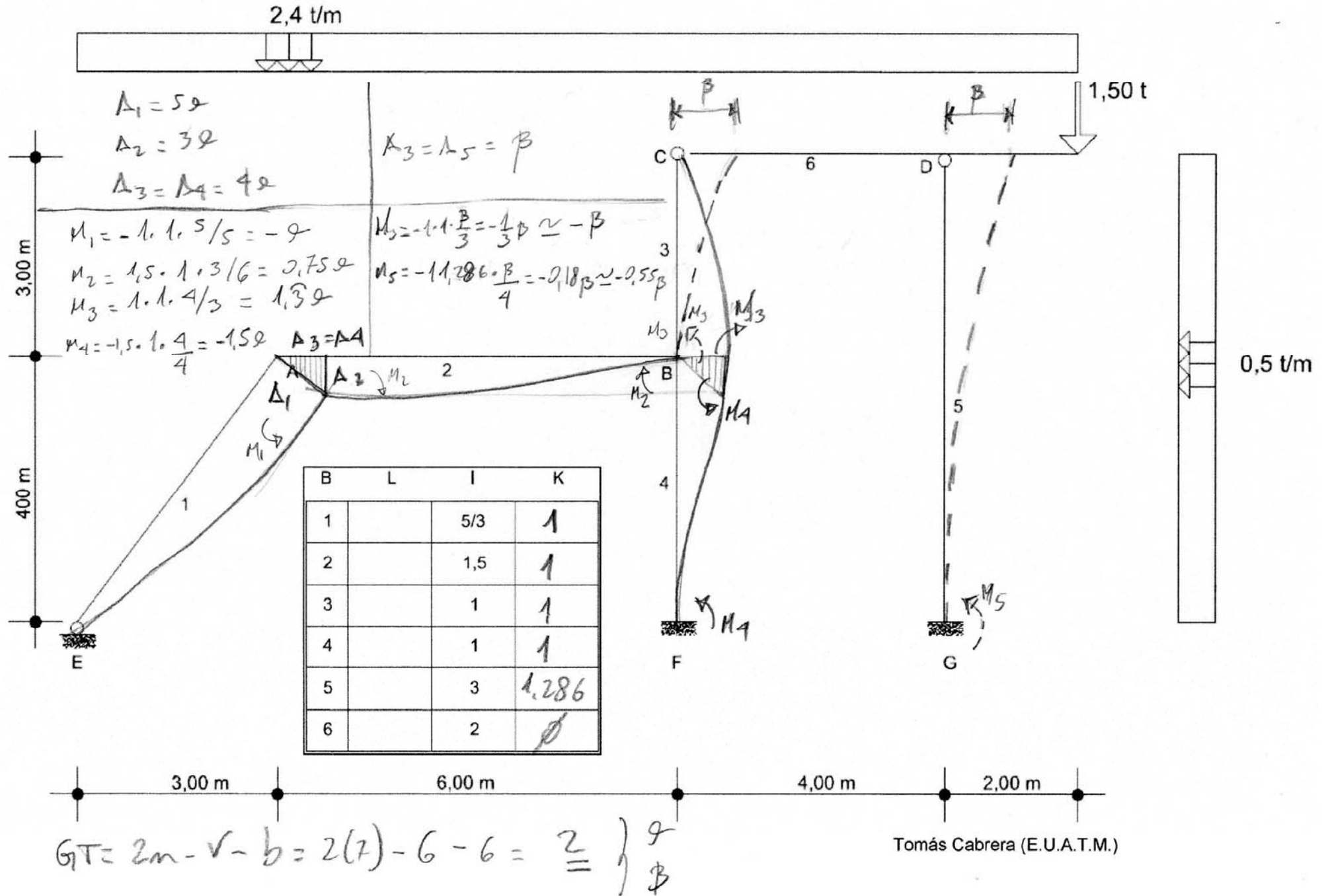
$M_1 = -1 \cdot 1 \cdot \frac{\sqrt{20}}{\sqrt{20}} = -1 \varrho$
 $M_2 = 1,5 \cdot 1,5 \cdot \frac{\sqrt{20}}{\sqrt{20}} = 2,25 \varrho$
 $M_3 = 1 \cdot 1,5 \cdot \frac{\sqrt{20}}{\sqrt{20}} = 1,5 \varrho$
 $M_4 = -1 \cdot 1 \cdot \frac{\sqrt{20}}{\sqrt{20}} = -1 \varrho$
 $M_5 = 1 \cdot 1 \cdot \frac{4}{4} = 1 \varrho$

nº 9

Parcial 08/ 02/ 2007

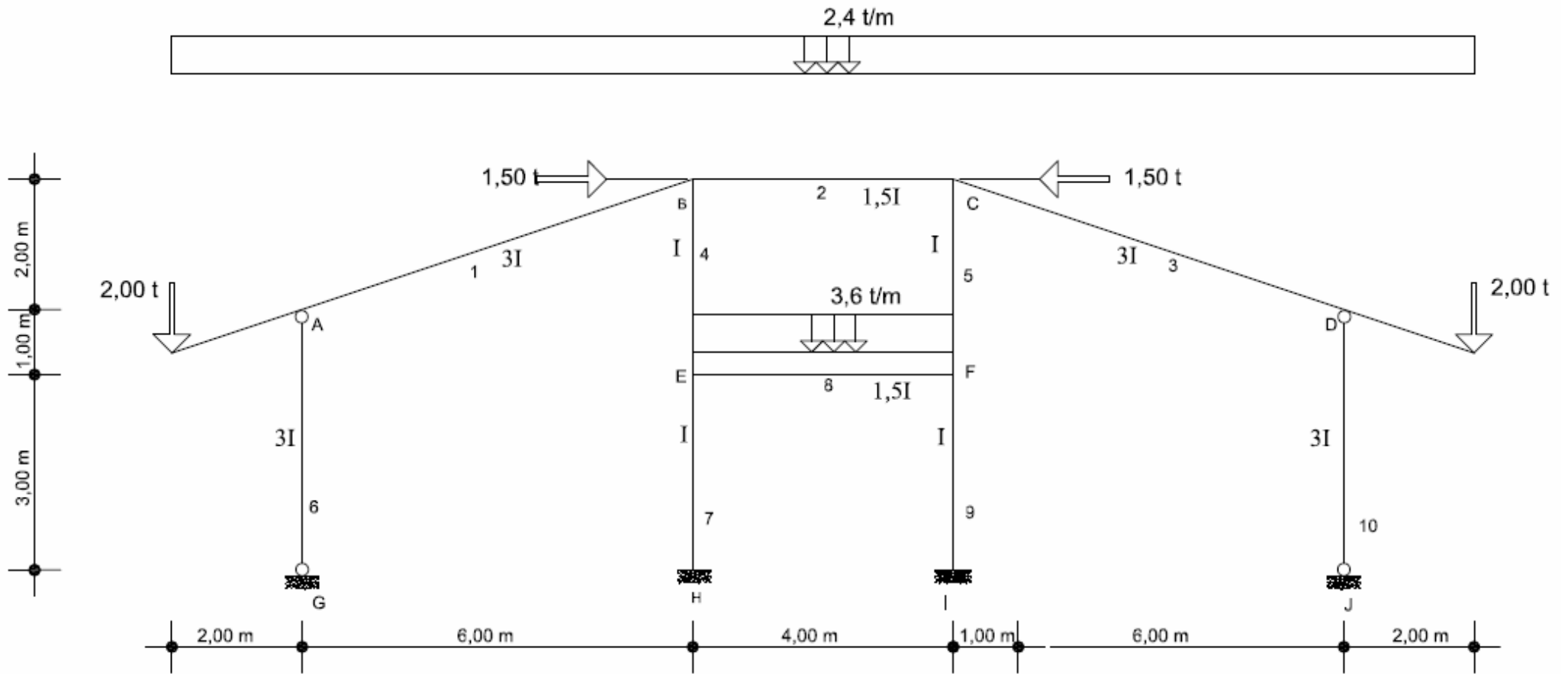


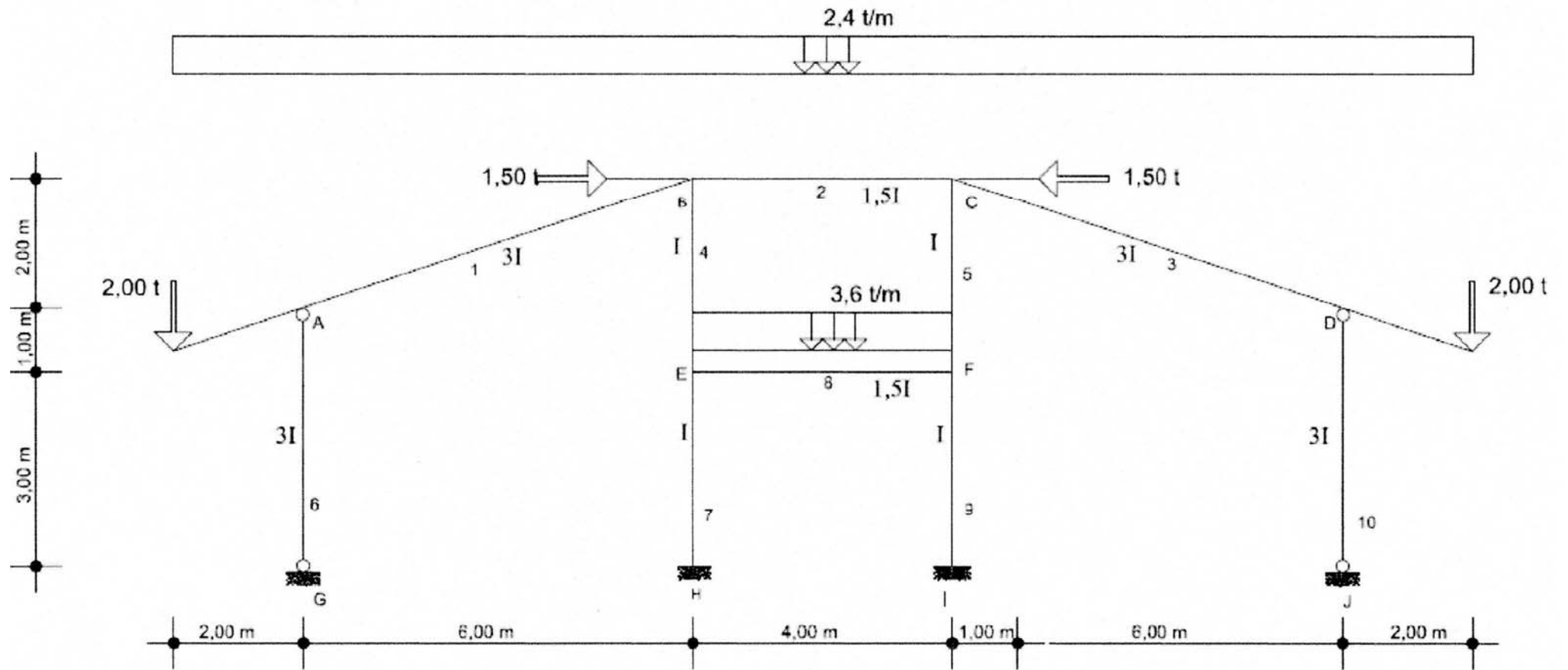
Tomás Cabrera (E.U.A.T.M.)



nº 10

Diciembre 15/ 12/ 2006





$$G_T = 2m - v - b = 2(10) - 8 - 10 = 2$$

NO SER SIMÉTRICO PORQUE LA CARGA \Rightarrow DESPLAZAMIENTOS SIMÉTRICOS \Rightarrow ETAPAS I

Tomás Cabrera (E.U.A.T.M.)

NO
ETAPAS I