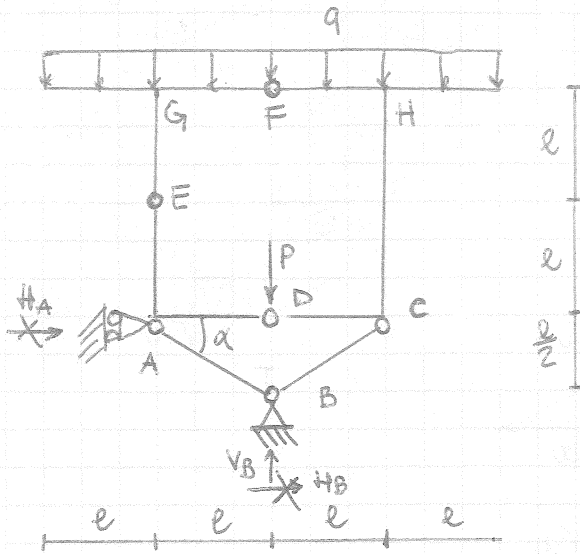


1)



$$q = 2000 \text{ N/m}$$

$$l = 3 \text{ m}$$

$$P = ql$$

$$\tan \alpha = (1/2)$$

$$\uparrow) V_B - q \cdot 4l - ql = 0 \quad V_B = 5ql$$

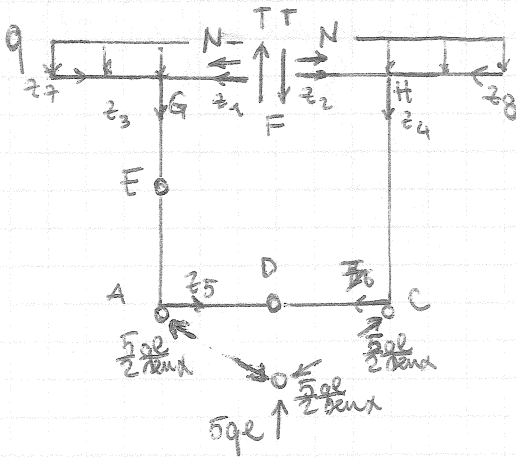
$$\rightarrow) H_A \cdot l/2 = 0 \quad H_A = 0$$

$$\rightarrow) H_B = 0$$

NODO B

$$\begin{aligned} & \begin{array}{c} N_{AB} \quad N_{BC} \\ \alpha \quad \alpha \\ \uparrow V_B \end{array} \rightarrow) N_{BC} \cdot \cos \alpha - N_{AB} \cdot \cos \alpha = 0 \\ & N_{BC} = N_{AB} \end{aligned}$$

$$\begin{aligned} & \uparrow) V_B + N_{AB} \cdot \sin \alpha + N_{BC} \cdot \sin \alpha = 0 \\ & N_{AB} = \frac{-V_B}{2 \sin \alpha} \end{aligned}$$



D) AUSILIARIA DAEGF

$$-\frac{5ql}{2 \sin \alpha} \cdot \sin \alpha \cdot l + 2ql^2 + N \cdot 2l = 0$$

$$N = \frac{ql}{4}$$

E) AUSILIARIA EGF

$$N \cdot l + T \cdot l = 0 \quad T = -N = -\frac{ql}{4}$$

$$N(z_1) = -ql/4 = -1500 \text{ N}$$

$$N(z_2) = -ql/4 = -1500 \text{ N}$$

$$N(z_3) = -2ql - ql/4 = -13500 \text{ N}$$

$$N(z_4) = -2ql + ql/4 = -10500 \text{ N}$$

$$N(z_5) = ql/4 + \frac{5}{2} ql \tan \alpha = 31500 \text{ N}$$

$$N(z_6) = ql/4 + \frac{5}{2} ql \tan \alpha = 31500 \text{ N}$$

$$N(z_7) = N(z_8) = 0$$

$$T(z_1) = ql/4 + ql = 1500 \text{ N}$$

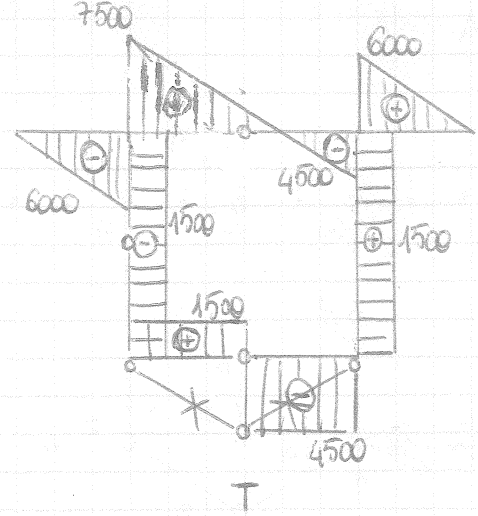
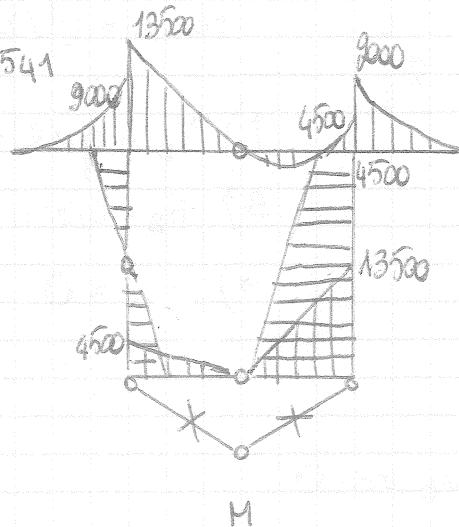
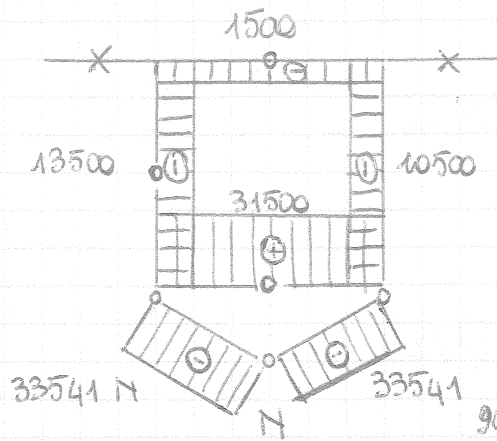
$$T(z_2) = ql/4 - ql = -1500 \text{ N}$$

$$T(z_3) = -ql/4 = -1500 \text{ N}$$

$$T(z_4) = ql/4 = 1500 \text{ N}$$

$$T(z_5) = \frac{ql}{4} - 2ql + \frac{5}{2} ql = +1500 \text{ N}$$

$$T(z_6) = \frac{ql}{4} - 2ql + \frac{5}{2} ql = -4500 \text{ N}$$



$$M(z_7) = M(z_8) = -\frac{q \cdot z^2}{2}$$

$$M(z_1) = -\frac{q \cdot l \cdot z}{4} - \frac{q \cdot z^2}{2}$$

$$M(z_5) = -\frac{q \cdot l^2 \cdot z}{4} + \frac{5 \cdot q \cdot l \cdot z^2}{2} - \frac{q \cdot l \cdot z^3}{4} + \frac{q \cdot l}{4} \cdot (l - z)$$

$$M(z_3) = -\frac{q \cdot l^2}{2} + \frac{q \cdot l^2}{4} + \frac{q \cdot l^2}{2} - \frac{q \cdot l}{4} \cdot z$$

$$M(z_4) = -\frac{q \cdot l^2}{2} - \frac{q \cdot l^2}{4} + \frac{q \cdot l^2}{2} - \frac{q \cdot l}{4} \cdot z$$

$$M(z_6) = \frac{q \cdot l^2 \cdot z}{2} + \frac{5 \cdot q \cdot l \cdot z^2}{2} - \frac{q \cdot l}{4} \cdot z \cdot l + \frac{q \cdot l}{4} \cdot (l - z)$$

The diagram shows a truss structure with a distributed load q acting downwards on a horizontal member. A point load P acts downwards on a diagonal member. The angle between the diagonal member and the horizontal is α . The horizontal distance from the left support to the point of application of P is e_1 . The vertical distance from the left support to the point of application of P is e_2 . The reaction forces at the left support are V_B (vertical) and H_B (horizontal).

$$P = q \ell$$

$$\alpha = 30^\circ \quad \beta = 60^\circ$$

$$AD = AB \cdot \cos \alpha = 2\sqrt{3} = DE$$

$$l_1 = DE \cdot \cos \alpha = \frac{3e}{2}$$

$$V_B = \frac{59}{16} \text{ gal}$$

$$\uparrow) V_A = q\ell_1 + 2q\ell - \frac{59}{16} q\ell = -\frac{3}{16} q\ell$$

$$\rightarrow) N_1 = N_2$$

$$\uparrow) H_1 = \frac{q\ell}{2\pi\mu_0} = q\ell$$

Diagram illustrating the forces acting on a particle. A central point is connected to four vectors: N_4 (up and right), N_3 (right), qL (down and right), and $\frac{3qL}{16}$ (down and left). The angle between N_4 and N_3 is α , and the angle between N_3 and qL is α .

$$\uparrow) N_4 \sin \alpha - \frac{3}{16} q l - q l \sin \alpha = 0$$

$$N_4 = \frac{11}{8} qe$$

$$\rightarrow) N_4 \cos \alpha + N_3 + q \ell \cos \alpha = 0$$

$$H_3 = -\frac{19}{16} \text{ g e v } \sqrt{3}$$

$\nearrow -\frac{11}{8}ql + N_6 - \frac{3}{4}ql \sin \alpha = 0$
 $N_6 = \frac{14}{8}ql$

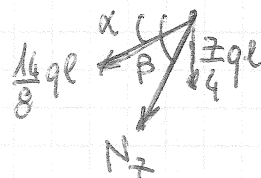
$$N_6 = \frac{14}{8} \text{ qe}$$

$$\rightarrow) N_5 + \frac{3}{4} q l \cos \alpha = 0$$

$$N_5 = -\frac{3\sqrt{3}}{8} \text{ qe}$$

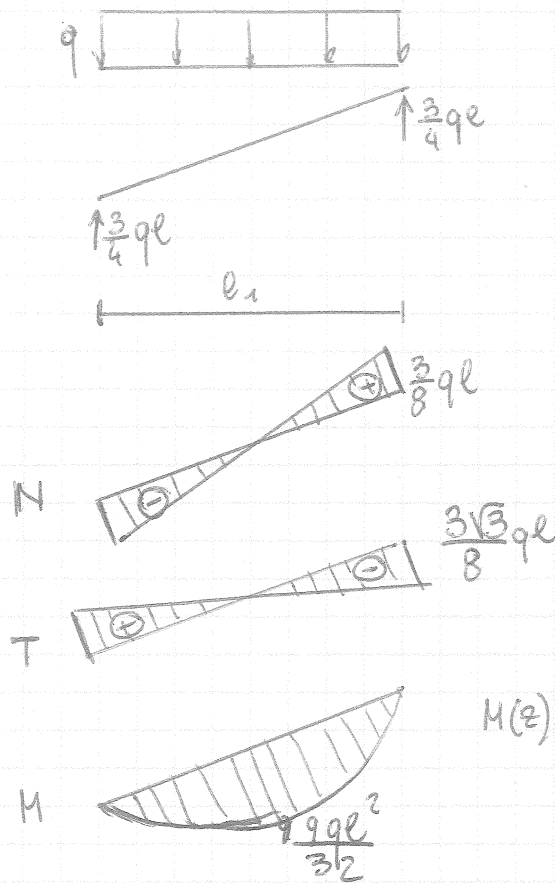
$$\rightarrow) -\frac{14}{8} \cdot 98 \cos \alpha - N_7 \cos \beta = 0$$

$$N_7 = -\frac{14}{8} \sqrt{3} \text{ qe}$$



n	N	[N]
1	$q\ell$	4000
2	$q\ell$	4000
3	$-\frac{16\sqrt{3}}{16}q\ell$	-8227
4	$\frac{11}{8}q\ell$	5500
5	$-\frac{3\sqrt{3}}{8}q\ell$	-2598
6	$\frac{14}{8}q\ell$	7000
7	$-\frac{14\sqrt{3}}{8}q\ell$	-12124

STATO SECONDARIO



$$M(x) = \frac{3}{4}q\ell x \cos \alpha - \frac{q x^2 \cos^2 \alpha}{2}$$