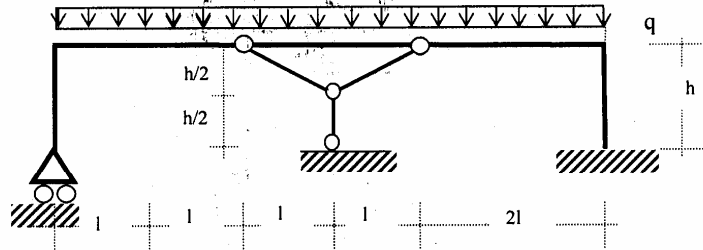
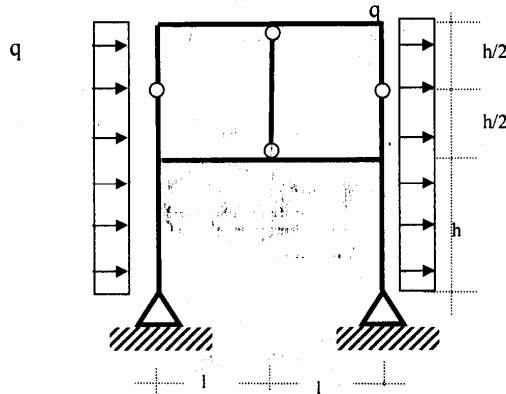


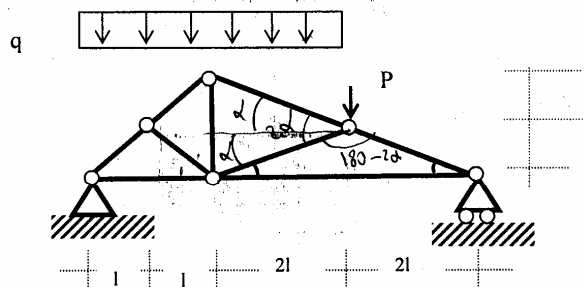
1) Risolvere e disegnare i diagrammi quotati di N, T, M per  $l=2\text{ m}$ ,  $h=3\text{ m}$ ,  $q=500\text{ kg/m}$



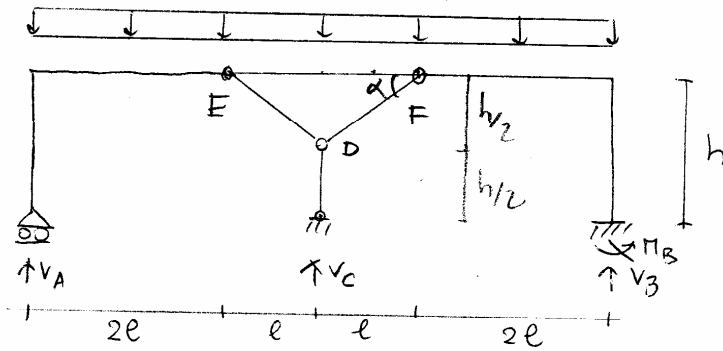
2) Risolvere e disegnare i diagrammi quotati di MNT ponendo  $q=200\text{ kg/m}$ ,  $l=2\text{ m}$ ,  $h=3\text{ m}$ .



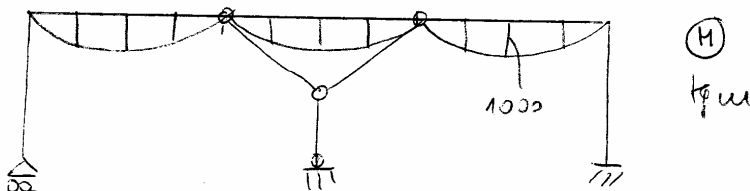
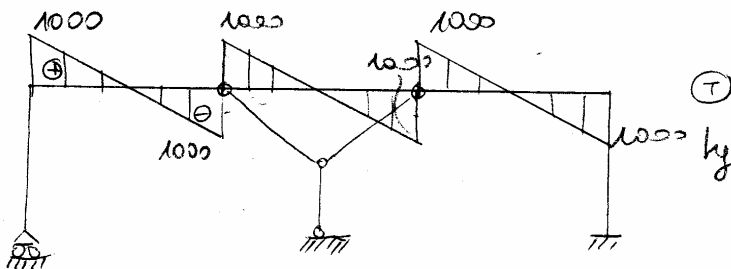
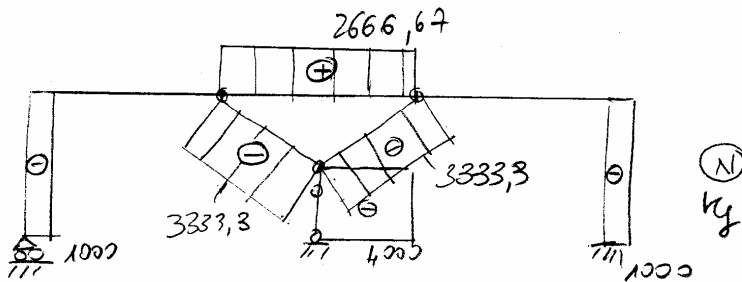
3) Risolvere e determinare lo stato di sollecitazione primario e secondario della reticolare in figura con  $l=1\text{ m}$ ,  $P=q\text{ l}$ ,  $q=500\text{ Kg/m}$



COMPITO SdC I 03/12/10

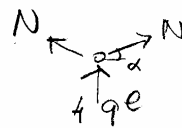


$$\begin{aligned} \operatorname{tg} \alpha &= \frac{3/2}{2} = \frac{3}{4} \\ \operatorname{cnd} &= \frac{2 \cdot 3/4}{\sqrt{1+9/16}} = \frac{3/4}{5/4} = 3/5 \\ \operatorname{cnd} &= 4/5 \end{aligned}$$



$$\begin{aligned} q &= 500 \text{ kg/m} \\ l &= 2 \text{ m}; h = 3 \text{ m} \end{aligned}$$

$$\begin{aligned} -V_A 2e + 2qe^2 &= 0 \Rightarrow V_A = ql \\ -V_C e - V_A 4e + 8qe^2 &= 0 \\ V_C &= -4qe + 8qe \\ &= 4qe = 4000 \text{ kg} \\ V_B &= -4qe - ql + 6qe \\ &= ql = 1000 \text{ kg} \\ V_B 2e + M_B - 2qe^2 &= 0 \\ \Rightarrow M_B &= 0 \end{aligned}$$



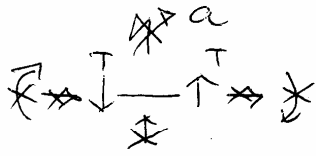
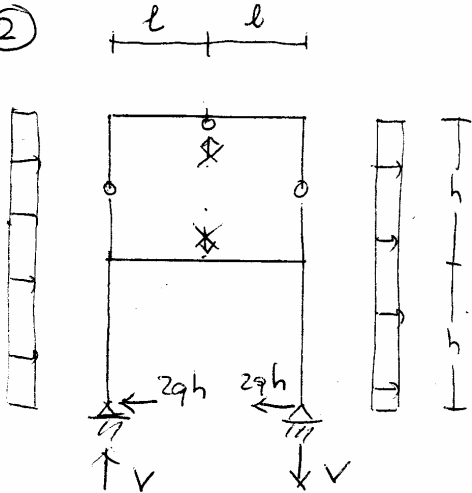
$$\begin{aligned} \uparrow) 2N &= \frac{4qe}{\operatorname{cnd}} \\ N &= -\frac{2qe}{3/5} = -\frac{10qe}{3} \\ &= -3333 \text{ kg} \end{aligned}$$

(N)

$$\begin{aligned} \downarrow) \frac{ql}{2} &= \frac{8qe}{3} \\ \frac{ql}{2} &= \frac{8qe}{3} \end{aligned}$$

(M)  
kgm

②



$$h = 3m = \frac{3}{2}l$$

$$l = 2m$$

$$q = 200 \text{ kg/m}$$

$$+V_2 l + 4qh^2 = 0$$

$$V_2 = 2q \frac{h^2}{l} = 2q \frac{9l}{4} = -\frac{9}{2}ql = -1800 \text{ kg}$$

$$+V_1 l - q \frac{l^2}{8} = 0$$

$$V_1 = +\frac{q}{8l} \frac{9l^2}{4} = +\frac{9}{32}ql = +112,5 \text{ kg}$$

$$V_2 = -\frac{9}{32}ql + \frac{9}{2}ql = -$$

$$= -\frac{9}{32}ql (-16) = \frac{135}{32}ql$$

$$= 1687,5$$

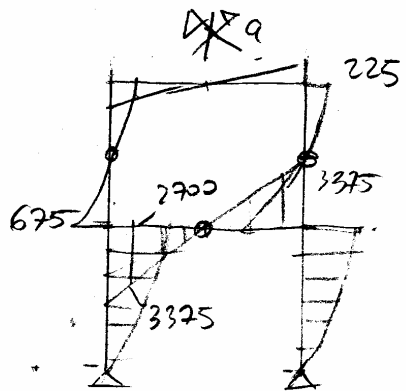
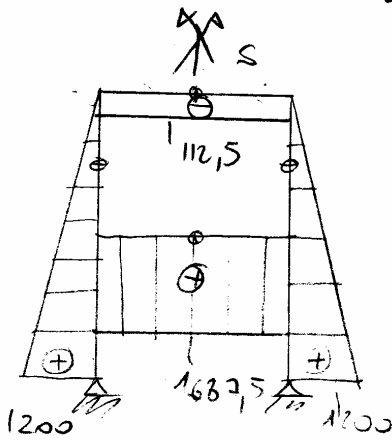
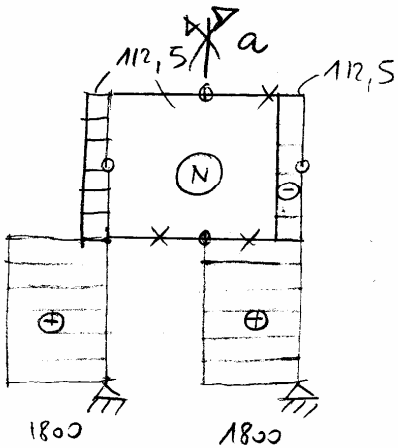
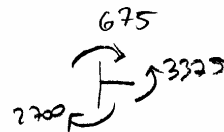
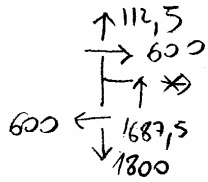
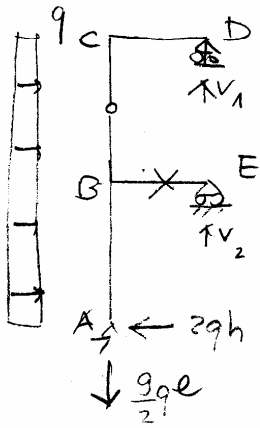
check

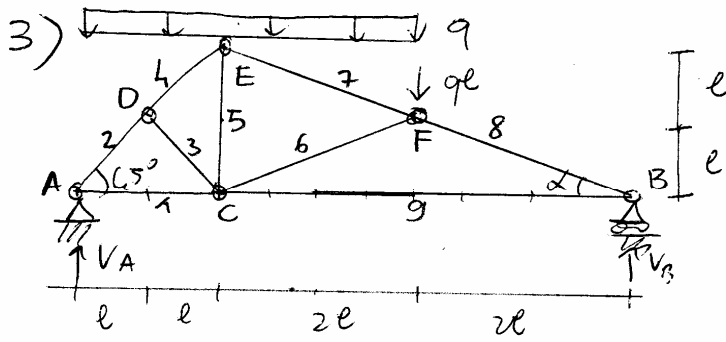
$$-2qh \frac{3}{2}h + \frac{3}{2}qh \frac{3}{4} = ql^2$$

$$-3q \frac{9l^2}{4} + \frac{9}{8}q \frac{9}{4} = \frac{125}{32}l^2$$

$$M_{BA} = 2qh^2 - q \frac{l^2}{8} = \frac{3}{2}qh^2 = 2700 \text{ kgm}$$

$$M_{BC} = -q \frac{l^2}{2} + \frac{9}{32}ql^2 = -675 \text{ kgm}$$





$$l = 4m$$

$$q = 500 \text{ kg/m}$$

$$-V_A^3 \cdot 6l + 2 \cdot 49l \cdot 4l + 89l^2 = 0$$

$$V_A = \frac{1}{3}(89l + 9l) = 39l$$

$$V_B = 29l$$

check

$$29l \cdot 6l = 69l^2 + 89l^2$$

$$\text{bfd} = 1/2$$

$$\text{mud} = \frac{1/2}{\sqrt{1+1/4}}$$

$$\text{wkd} = 2/\sqrt{5}$$

Ⓐ

$$\uparrow) N_2 \frac{\sqrt{2}}{2} = -\frac{5}{2} 9l$$

$$N_2 = -\frac{5}{2} 9l \sqrt{2}$$

$$N_1 = \frac{5}{2} 9l$$

Ⓓ

$$\rightarrow) N_4 + \frac{5}{2} 9l \sqrt{2} - 9l \frac{\sqrt{2}}{2} = 0$$

$$N_4 = -29l \sqrt{2}$$

$$N_3 = -9l \frac{\sqrt{2}}{2}$$

Ⓔ

$$\rightarrow) N_2 \text{wkd} + 29l = 0$$

$$N_2 = -\frac{29l \sqrt{5}}{2} = -9l \sqrt{5}$$

$$\uparrow) -N_5 + \frac{9l \sqrt{5}}{2} - \frac{39l}{2} + 29l = 0$$

$$N_5 = \frac{3}{2} 9l$$

Ⓕ

$$\rightarrow) -N_6 \cos \alpha + N_8 \cos \alpha + 9l \sqrt{5} \cdot \cos \alpha = 0$$

$$N_6 - N_8 = 9l \sqrt{5} = 9l / \text{mud}$$

$$\uparrow) +N_6 \sin \alpha + N_8 \sin \alpha + 29l + 9l = 0$$

$$N_6 + N_8 = \frac{-39l}{\sin \alpha}$$

$$2N_6 = -\frac{29l}{\sin \alpha}$$

$$N_6 = -\frac{9l}{\sin \alpha} = -9l \sqrt{5}$$

$$N_8 = -\frac{39l}{\sin \alpha} + \frac{9l}{\sin \alpha} = -29l \sqrt{5}$$

Ⓖ

$$N_9 = +29l \sqrt{5} \frac{2}{\sqrt{5}} = 49l$$

1	5/2 * 9l	1250
2	-5/2 * 9l * sqrt(2)	-1767,77
3	-9l * sqrt(2) / 2	-3535,55
4	-29l * sqrt(2)	-1414,21
5	+3/2 * 9l	750
6	-9l * sqrt(5)	-1118,03
7	-9l * sqrt(5)	-1118,03
8	-29l * sqrt(5)	2236,06
9	49l	2000