

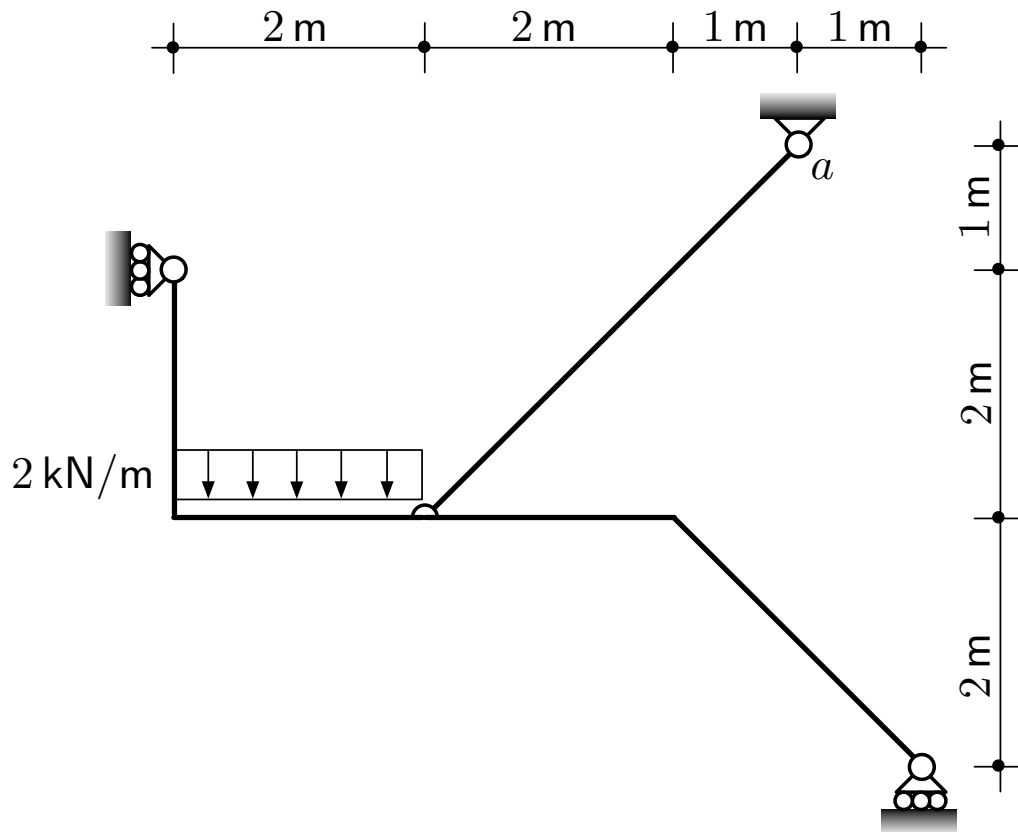
FONDAMENTI DI MECCANICA DELLE STRUTTURE

(docente: G. FORMICA)

PROVA DI VERIFICA – 24 Aprile 2012

STUDENTE: _____

prova **D**



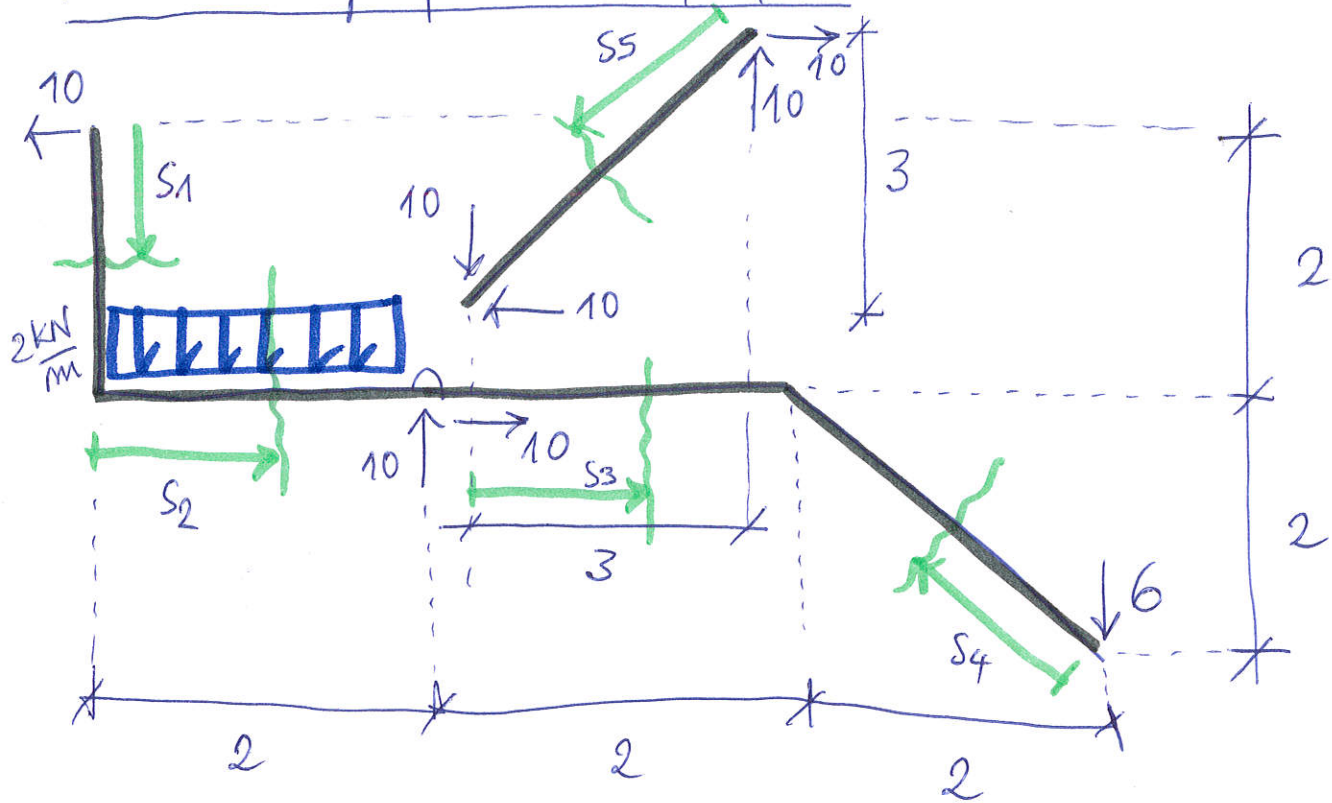
Parte 1

Del sistema articolato di due corpi rigidi rappresentato in figura, si chiede di:

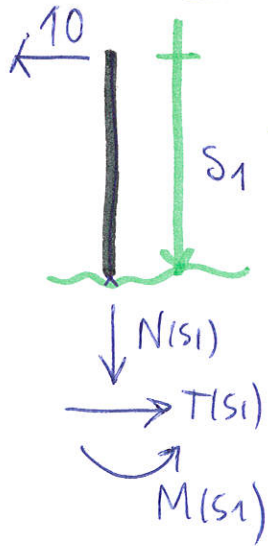
- ~~1.1. calcolare il valore della reazione vincolare **orizzontale** $R_o(a)$ fornita dalla cerniera in a , utilizzando il metodo della potenza. In particolare, una volta reso labile il sistema:~~
 - ~~1.1a. disegnare il grafico della velocità, e la configurazione adiacente;~~
 - ~~1.1b. riportare l'espressione per calcolare il valore di $R_o(a)$;~~
- ~~1.2. determinare il valore delle restanti reazioni vincolari con il metodo dei corpi liberi.~~
- 1.3. tracciare i grafici delle caratteristiche di sollecitazione (N , T , M).

Tracciare i grafici di N, T, M

1.3

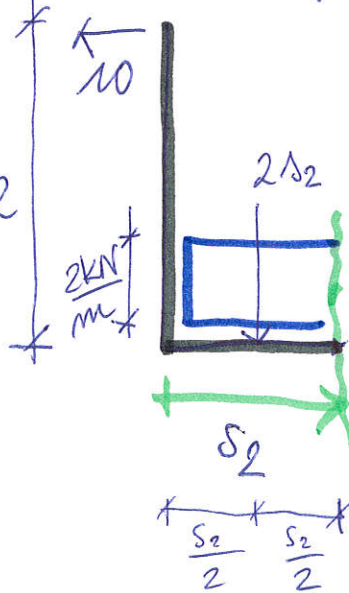


$$0 \leq s_1 \leq 2$$



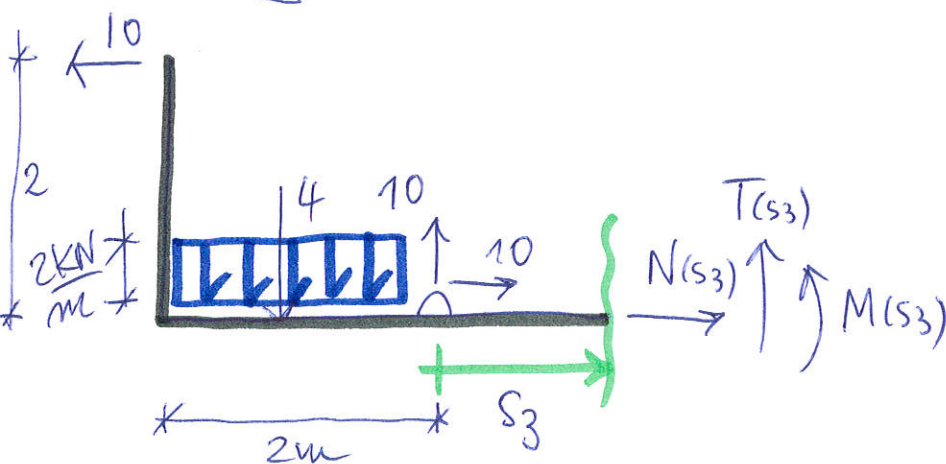
$$\begin{cases} N(s_1) = 0 \\ T(s_1) = 10 \\ M(s_1) = -10s_1 \end{cases}$$

$$0 \leq s_2 \leq 2$$



$$\begin{cases} N(s_2) = 10 \\ T(s_2) = 2s_2 \\ M(s_2) = -20 - s_2^2 \end{cases}$$

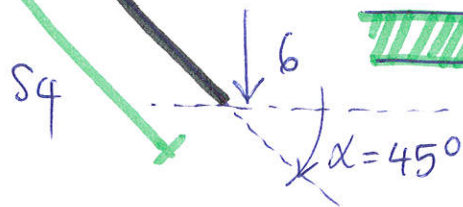
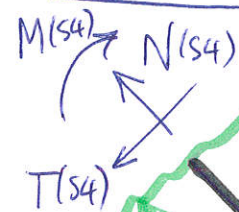
$$0 \leq s_3 \leq 2$$



$$\begin{cases} N(s_3) = 0 \\ T(s_3) = -10 + 4 = -6 \\ M(s_3) = 10s_3 - 4(1 + s_3) - 20 \end{cases}$$

③

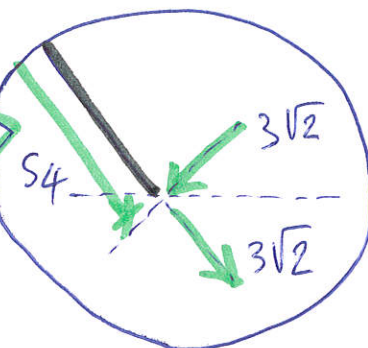
$$0 \leq s_4 \leq 2\sqrt{2}$$



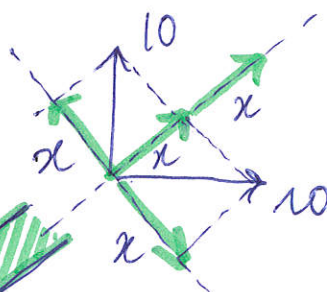
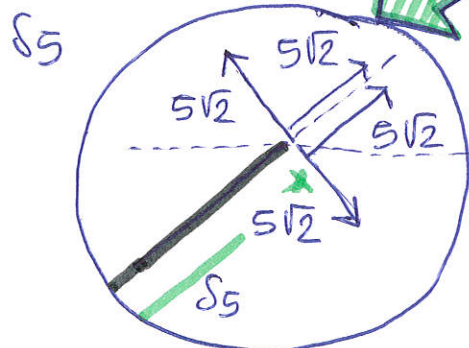
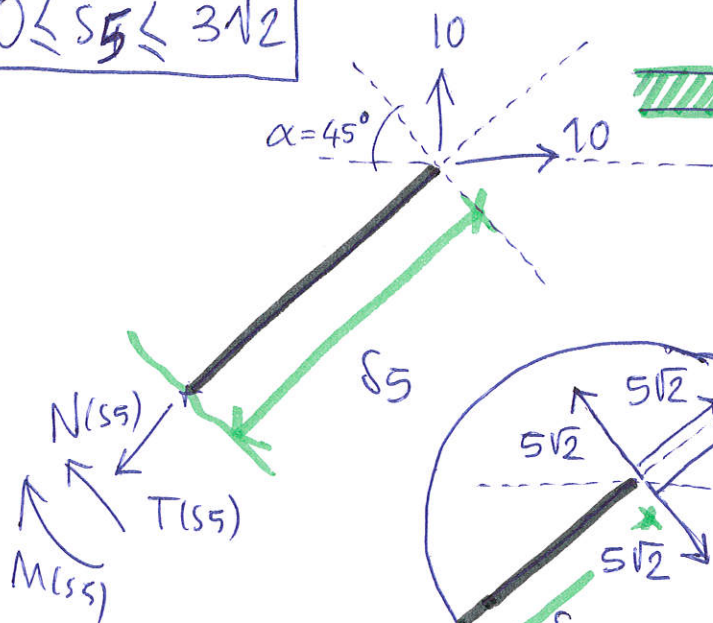
$$x\sqrt{2} = 6$$

$$x = \frac{6\sqrt{2}}{2} = 3\sqrt{2}$$

$$\begin{cases} N(s_4) = 3\sqrt{2} \\ T(s_4) = -3\sqrt{2} \\ M(s_4) = 3\sqrt{2}s_4 \end{cases}$$



$$0 \leq s_5 \leq 3\sqrt{2}$$

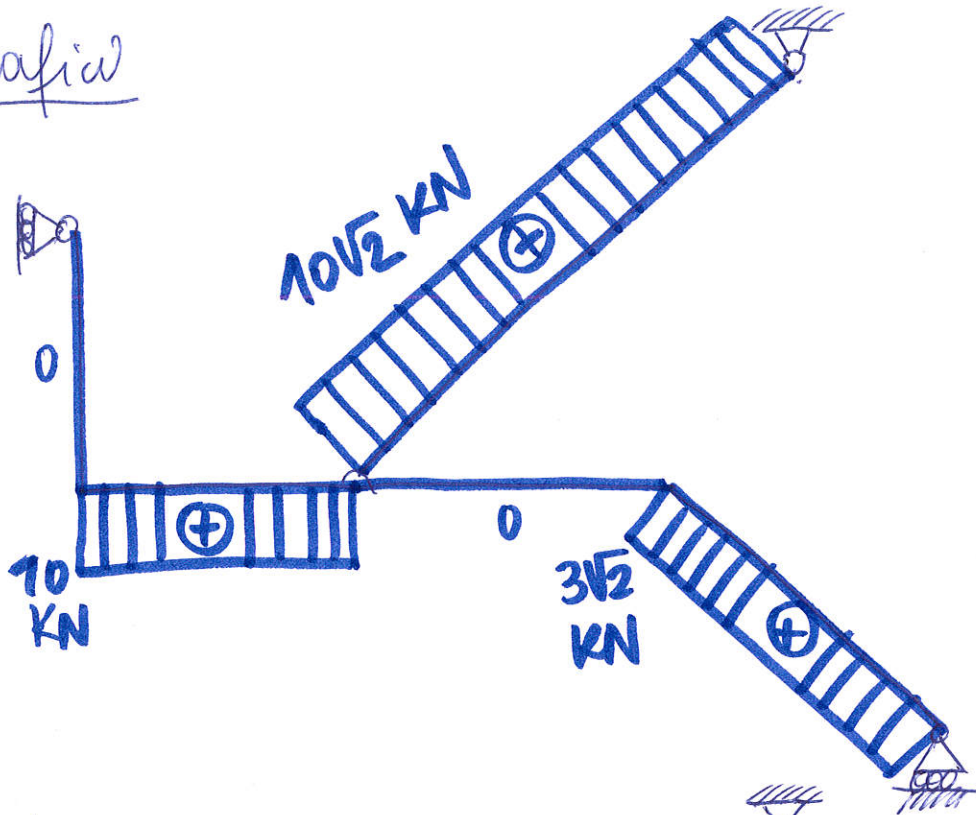


$$x\sqrt{2} = 10$$

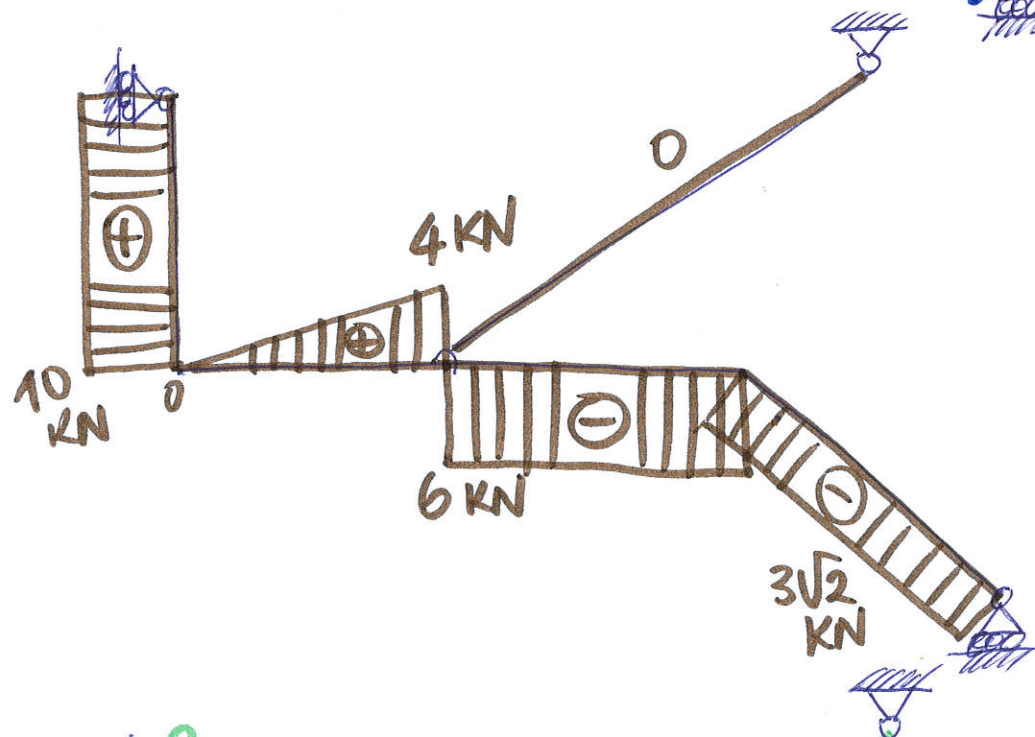
$$x = \frac{10\sqrt{2}}{2} = 5\sqrt{2}$$

$$\begin{cases} N(s_5) = 10\sqrt{2} \\ T(s_5) = 0 \\ M(s_5) = 0 \end{cases}$$

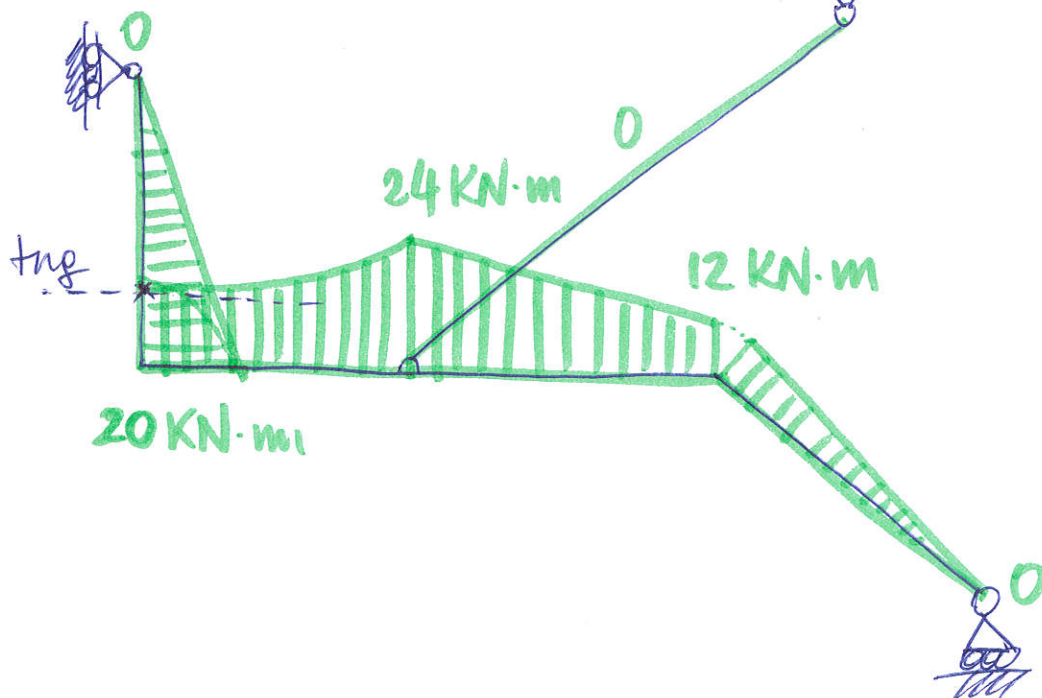
Grafica



(N)



(T)



(5)