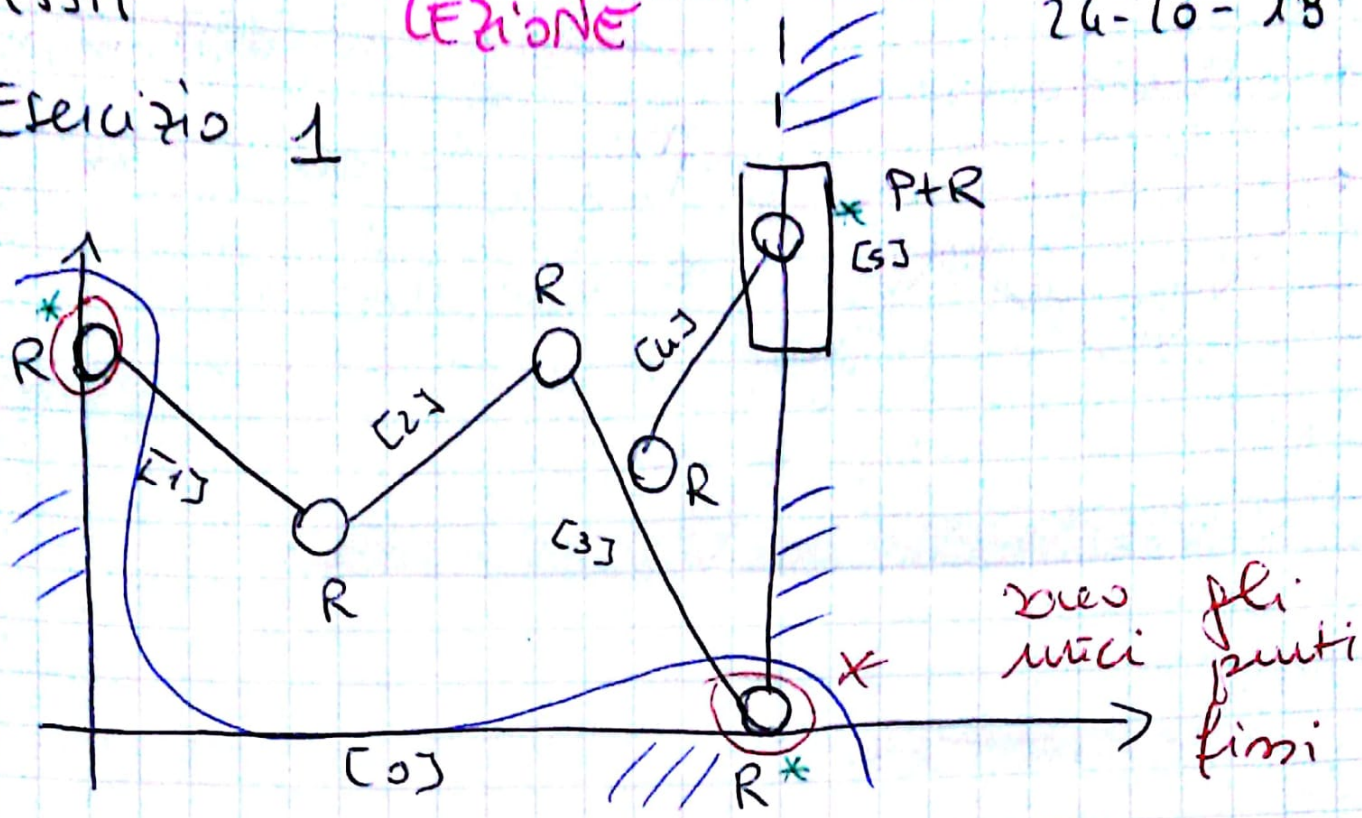
MSSM LEZIONE 24-10-18

Esercizio 1



- DOF (2 punti)

$$N = 3(\underbrace{m-1}_{\text{m corpi mobili}}) - 2C_1 - 1\cdot C_2$$

$$N = 3(6-1) - 2\cdot 7 = 15-14 = 1$$

- Scelta di $\bar{q}$

Coordinata generalizzata

modulatore attuatore che guida un manovellismo di spinta

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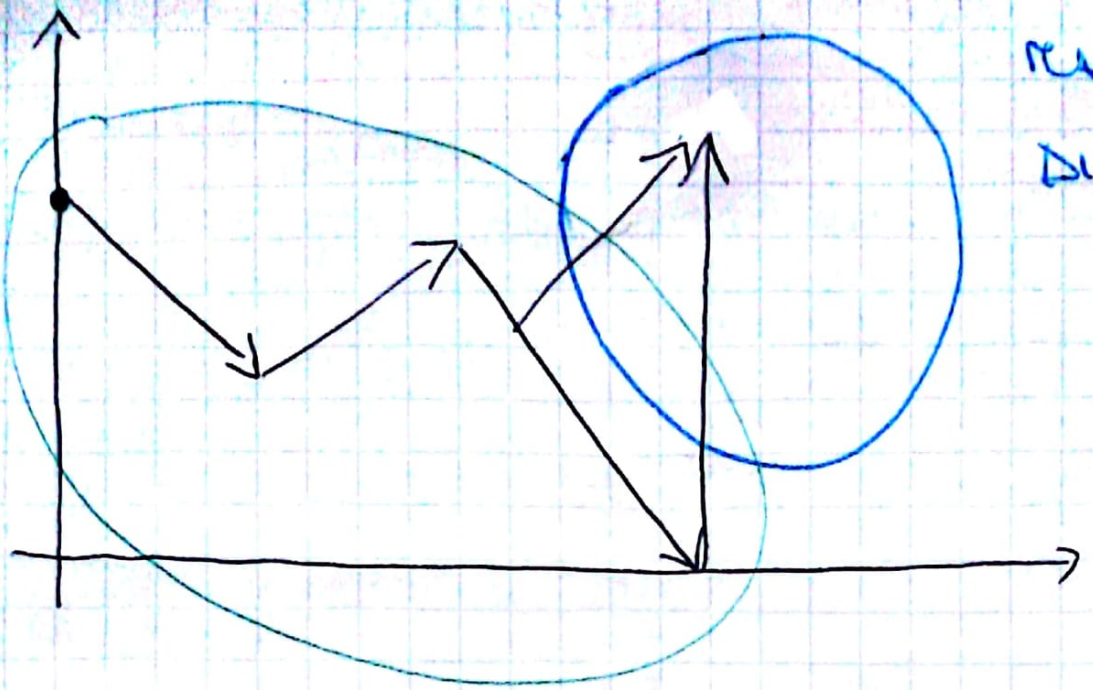


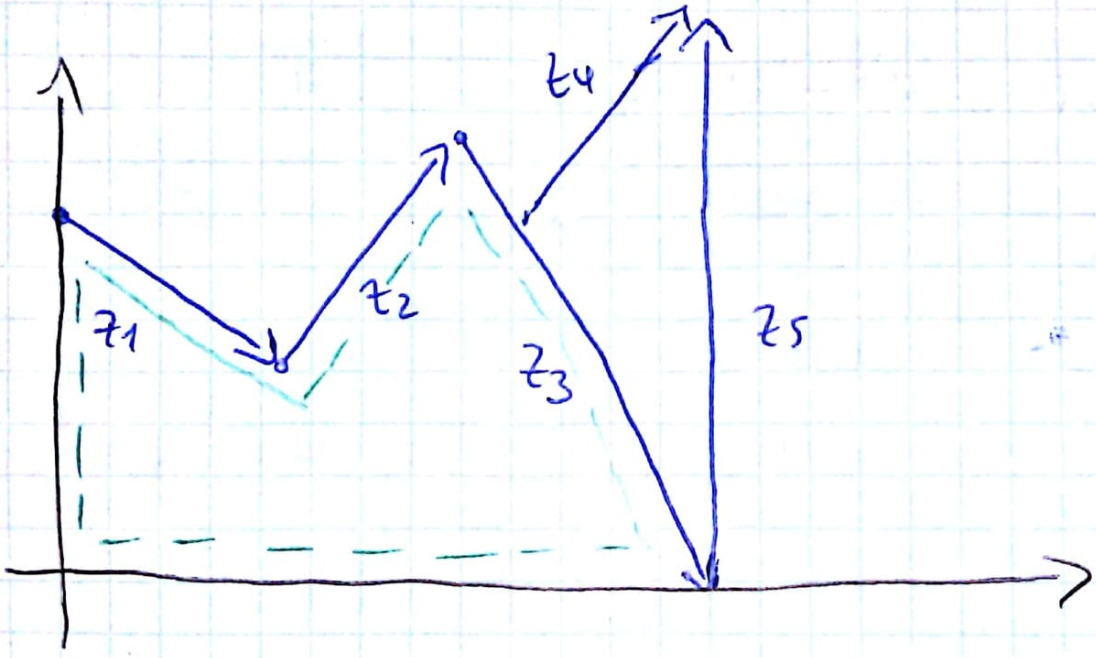
PIANO VELLISCO

DI SPINTA

QUADRILATERO

ARTICOLATO

I punti mobili possono essere sfalsati per chiudere la catena di chiusura



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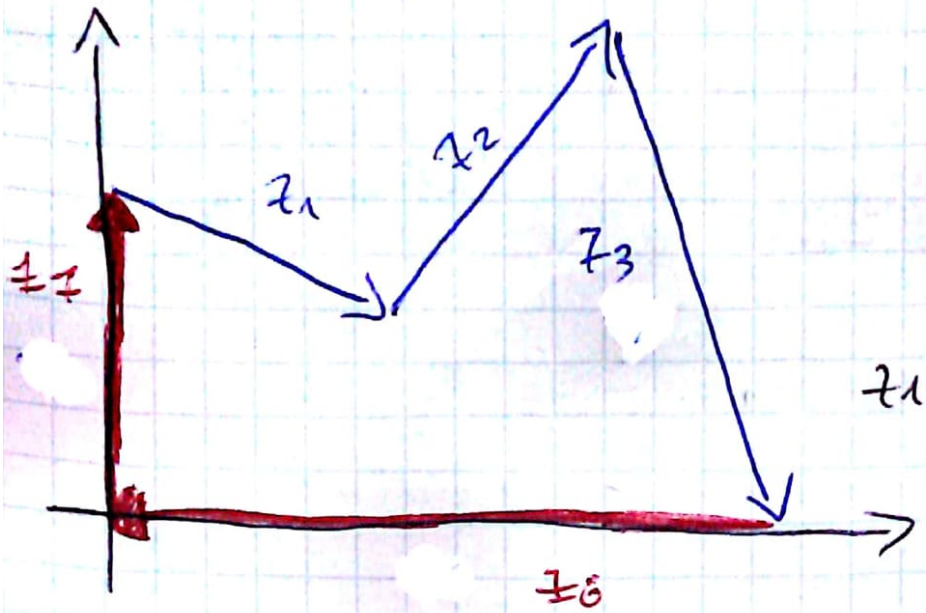
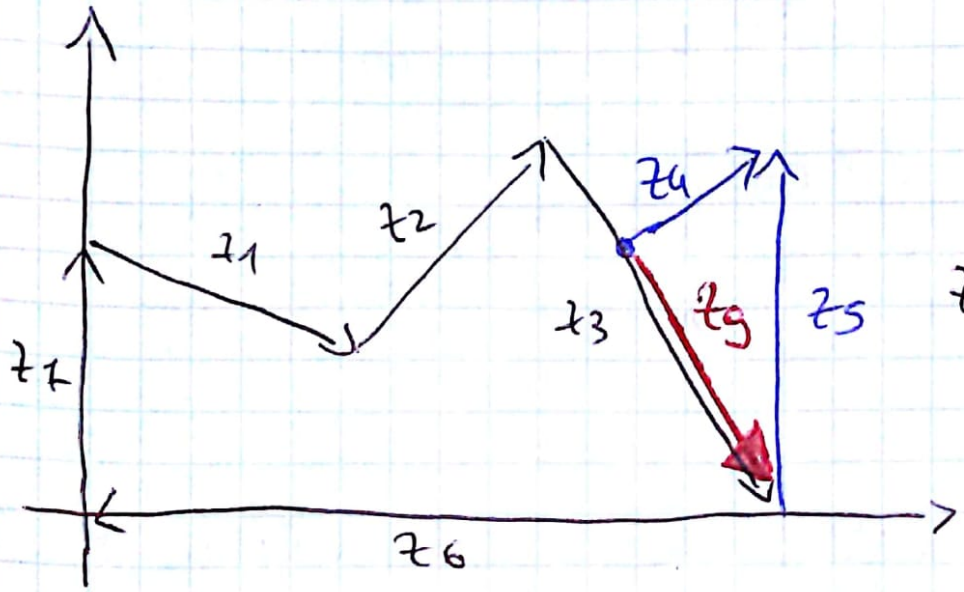
• prima ep. di chiusura



$$z_1 + z_2 + z_3 + z_7 + z_8 = 0$$

•• seconda ep di chiusura



$$z_4 - z_5 - z_9 = 0$$

• ep. di chiusura

$$\begin{cases} z_1 + z_2 + z_3 + z_7 + z_8 = 0 \\ z_4 - z_5 - z_9 = 0 \end{cases}$$

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Allora:

$\bar{p} = \omega_5$

$\bar{K} = \omega_1 \; \omega_2 \; \omega_3 \; \omega_4 \; \omega_5 \; \omega_6 \; \omega_6 \; \omega_7 \; \omega_7 \; \omega_9$

$\bar{\varphi} = \vartheta_1 \; \vartheta_2 \; \vartheta_3 \; \vartheta_4 \; \vartheta_9 = \vartheta_3$

- ep. differenziali

$$q_1 \begin{Bmatrix} c_1 \\ s_1 \end{Bmatrix} + q_2 \begin{Bmatrix} c_2 \\ s_2 \end{Bmatrix} + \dots = 0$$

$$q_4 \begin{Bmatrix} c_4 \\ s_4 \end{Bmatrix} - q_5 \begin{Bmatrix} c_5 \\ s_5 \end{Bmatrix} - q_9 \begin{Bmatrix} c_9 \\ s_9 \end{Bmatrix} = 0$$

(glifo, manovellismo, quadrilatero e tre cerniere)

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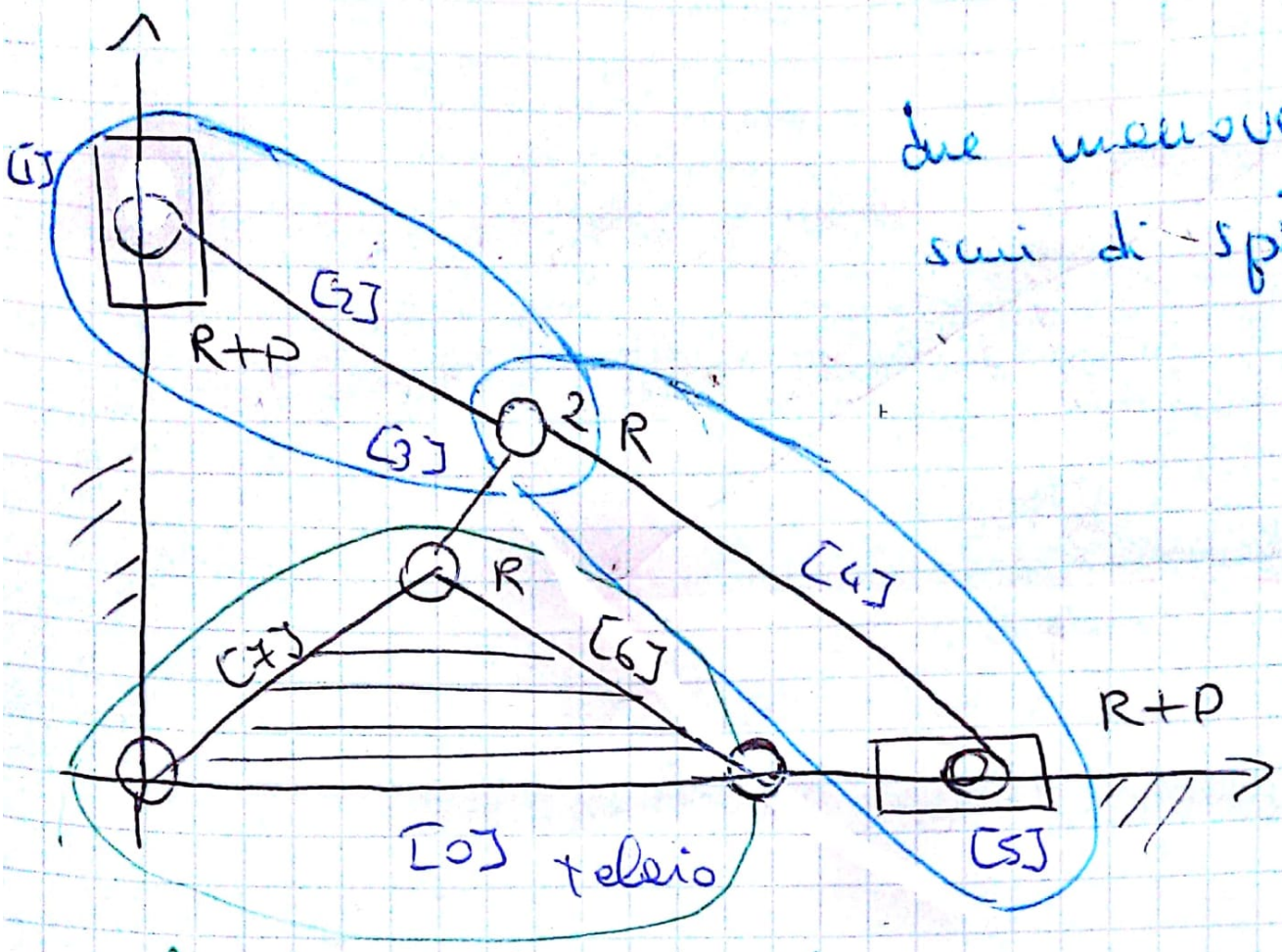
Esercizio 2



due movelli = sui disputo

Arco a tre cerniere

C'è attaccato al telaio, quindi non si muove. È una struttura

$$N = 3(6-1) - 2 \cdot 7 = 1$$

$$\bar{q} = \vartheta_1$$

$$\bar{k} = \vartheta_1\ \vartheta_2\ \vartheta_3\ \vartheta_4\ \vartheta_4\ \vartheta_5\ \vartheta_5\ \vartheta_6\ \vartheta_7$$

$$\bar{\varphi} = \vartheta_2\ \vartheta_3\ \vartheta_6\ \vartheta_7$$

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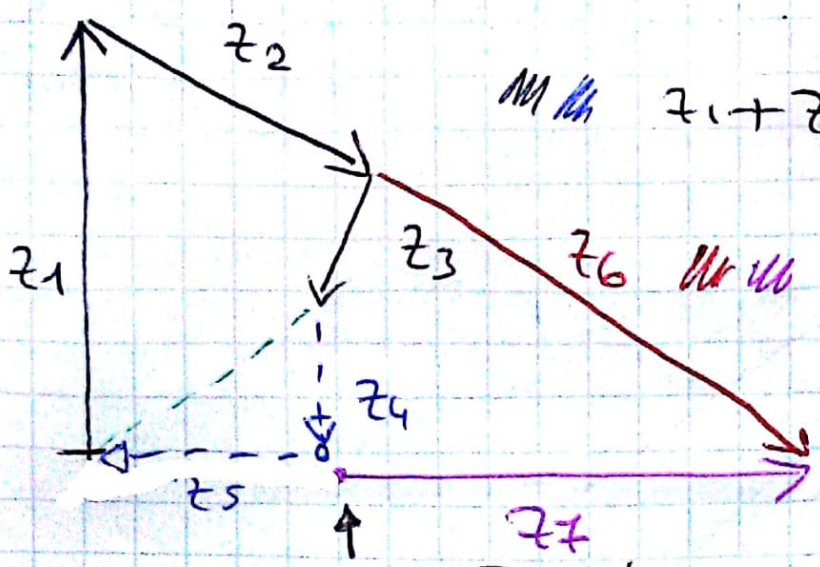
Si schematizzano i due manovellismi di sputa:



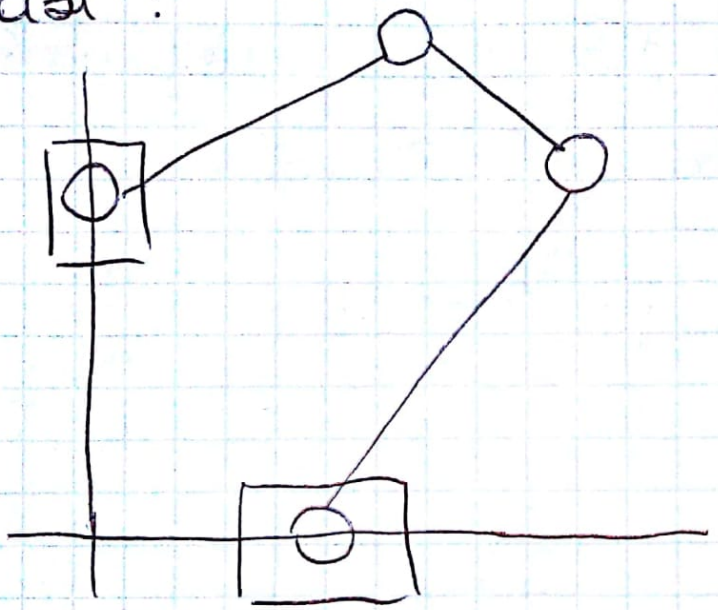
$z_1 + z_2 + z_3 + z_4 + z_5 = 0$

$z_7 - z_6 + z_3 + z_4 = 0$

si parte da qui per scrivere l'eq. di chiusura

Esercizi:

1)



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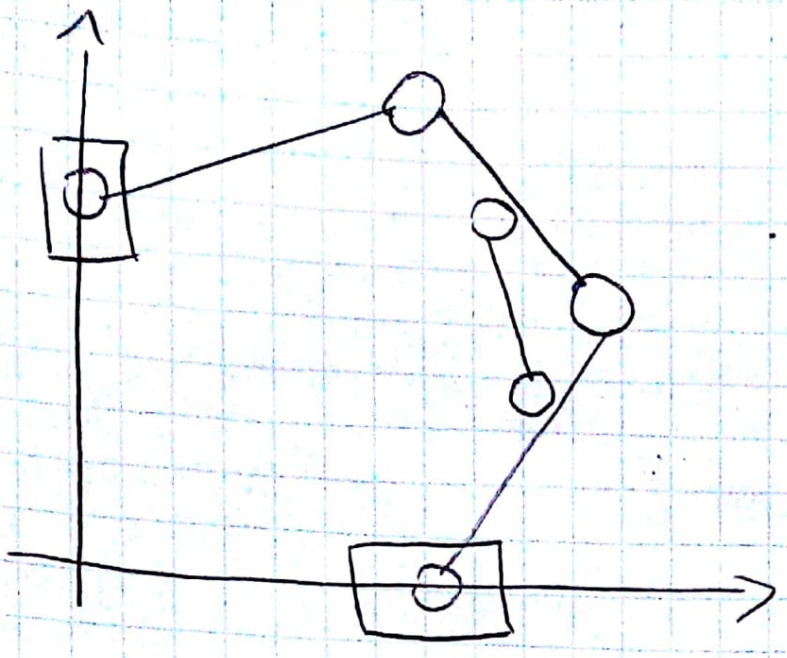
2)



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