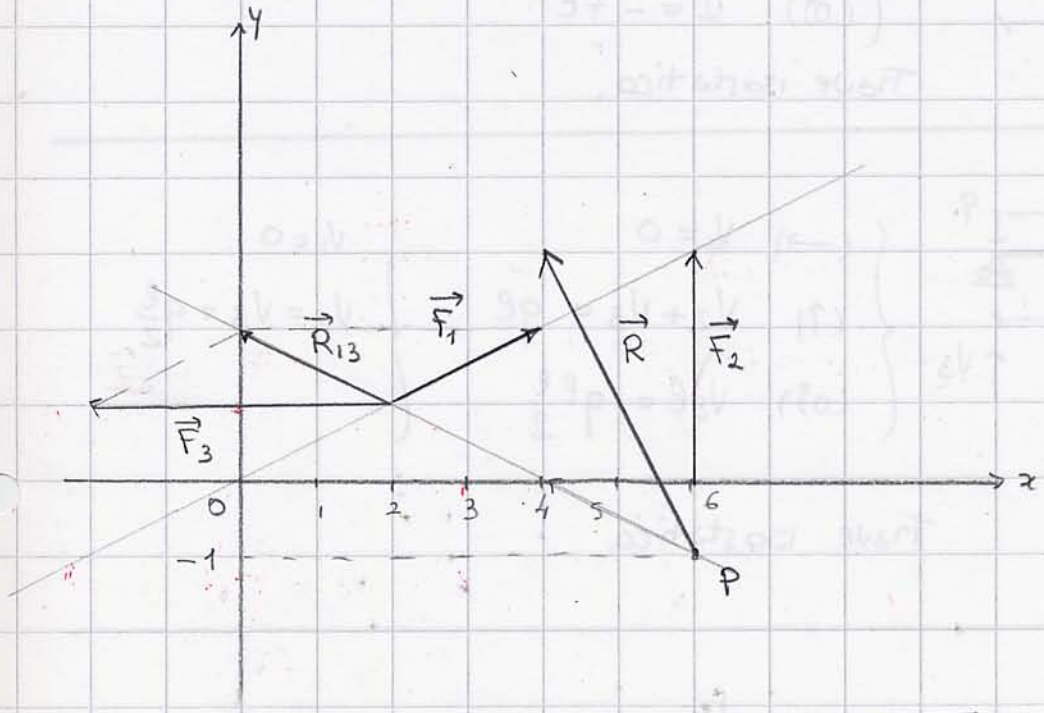
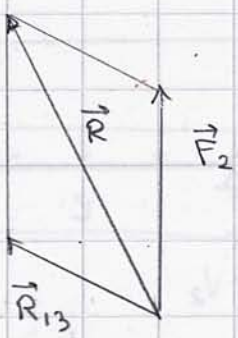
ESERCIZIO 1.4.

$F_{1x} = 20$ kN, $F_{1y} = 10$ kN, $M_{10} = 0$

$F_{2x} = 0$, $F_{2y} = 30$ kN, $M_{20} = 180$ kNm

$F_{3x} = -40$ kN, $F_{3y} = 0$, $M_{30} = 40$ kN





$R_x = 20 - 40 = -20$ kN

$R_y = 10 + 30 = 40$ kN

$M_o = 180 + 40 = 220$ kN

$d = \frac{M_o}{R} = \frac{220}{10\sqrt{20}} = 4,91$ m

$R = \sqrt{(20)^2 + (40)^2} = 10\sqrt{4+16} = 10\sqrt{20}$

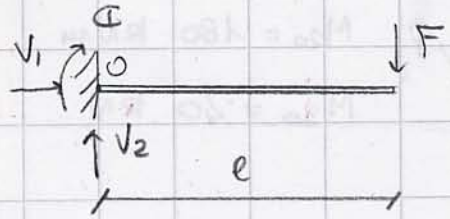
$= 44,72$ kN

$P = (6, -1)$ è un punto della retta di azione di $\vec{R}$ (vedi la costruzione grafica).

ESERCIZIO 2.6.

Equazioni cardinali della statica:

b)



$$\begin{cases} (\rightarrow) & V_1 = 0 \\ (\uparrow) & V_2 = F \\ (\circlearrowleft_O) & C = -Fe \end{cases}$$

Trave isostatica.

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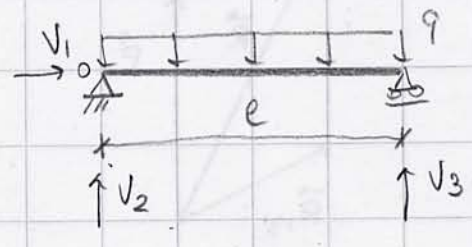
c)



$$\begin{cases} (\rightarrow) & V_1 = 0 \\ (\uparrow) & V_2 + V_3 = qe \\ (\circlearrowleft_O) & V_3 e = q e \frac{e}{2} \end{cases} \qquad \begin{cases} V_1 = 0 \\ V_2 = V_3 = q\frac{e}{2} \end{cases}$$

Trave isostatica

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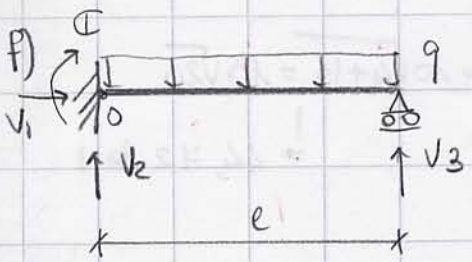
f)



$$\begin{cases} (\rightarrow) & V_1 = 0 \\ (\uparrow) & V_2 + V_3 = qe \\ (\circlearrowleft_O) & -C + V_3 e - q\frac{e^2}{2} = 0 \end{cases}$$

Trave una volta iperstatica (tre incognite, V_2, V_3 e C, e solo due equazioni, $(\uparrow)$ e $(\circlearrowleft_O)$).