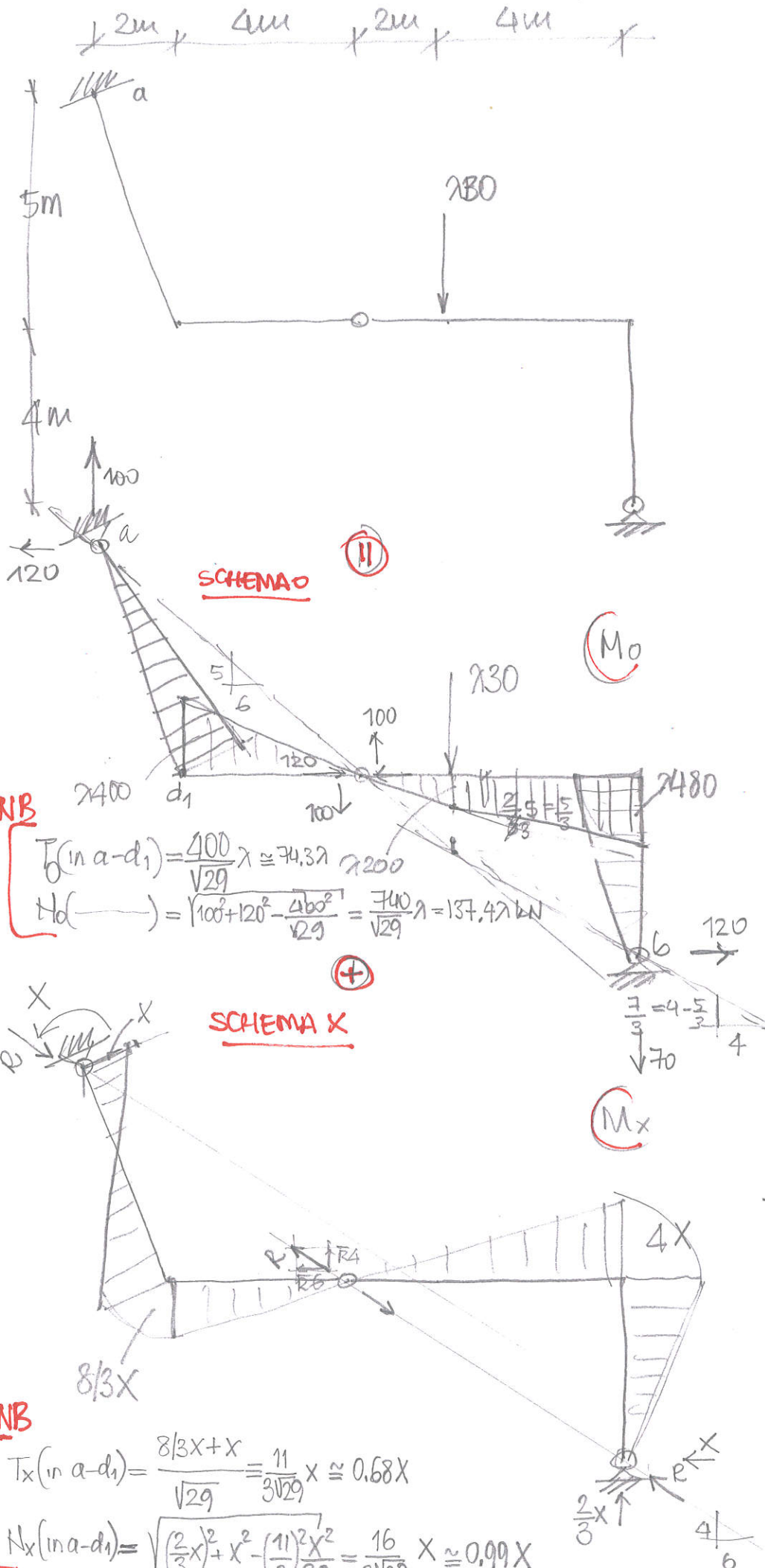
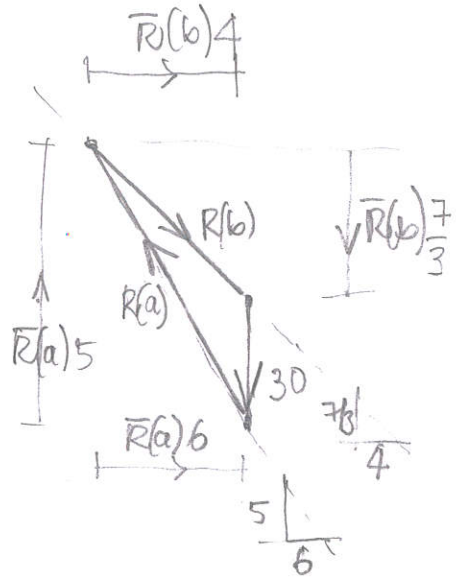


X ≡ reazione alla rotazione in incastro a

SCHEMA INIZIALE E SCHEMI ISOSTATICI



$$\begin{cases} \bar{R}(b)4 = \bar{R}(a)6 \\ \bar{R}(b)\frac{7}{3} + 30 = \bar{R}(a)5 \end{cases}$$

$$\equiv \bar{R}(b)\frac{2.5}{3}$$

$$\Rightarrow \bar{R}(b) = 30 \Rightarrow \bar{R}(a) = 20$$

Somma momenti a sx

$$-\bar{R}4 \times 6 + \bar{R}6 \times 5 = X$$

(↺) (↻) (↺)

$$\Rightarrow \bar{R} = X/6$$

NB

$$T_0(\text{in } a\text{-}d_1) = \frac{400}{\sqrt{29}}\lambda \cong 74.3\lambda$$

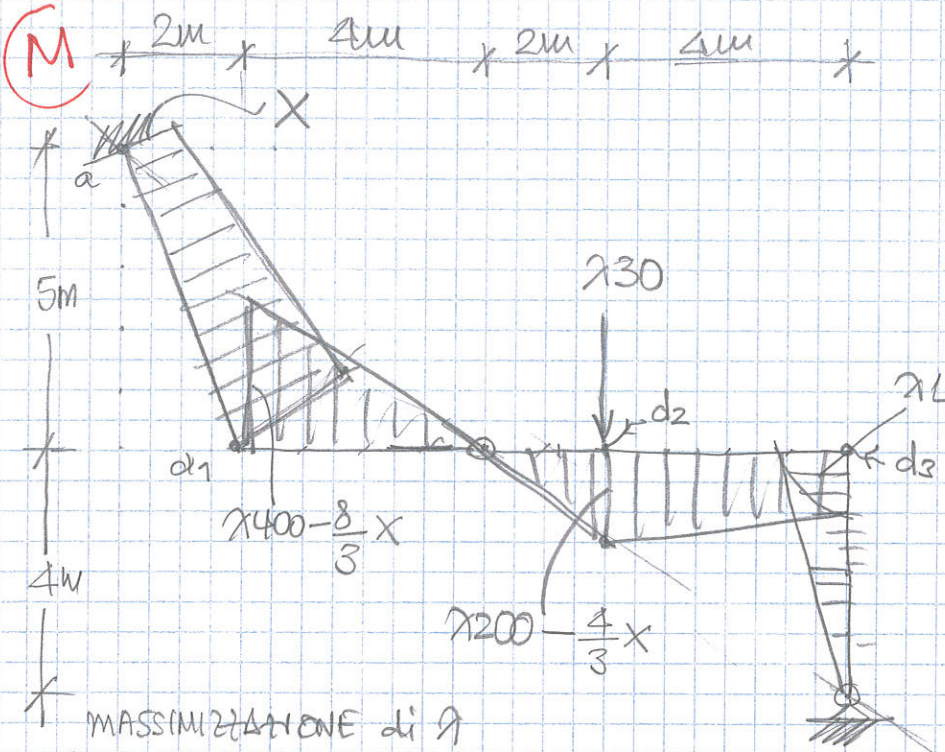
$$N_0(\text{---}) = \sqrt{100^2 + 120^2 - \frac{480^2}{29}} = \frac{740}{\sqrt{29}}\lambda = 137.47\lambda \text{ kN}$$

NB

$$T_X(\text{in } a\text{-}d_1) = \frac{8/3X + X}{\sqrt{29}} = \frac{11}{3\sqrt{29}}X \cong 0.68X$$

$$N_X(\text{in } a\text{-}d_1) = \sqrt{\left(\frac{2}{3}X\right)^2 + X^2 - \left(\frac{11}{3}\right)^2\frac{X^2}{29}} = \frac{16}{3\sqrt{29}}X \cong 0.99X$$

M



$M_Y = 600$ kN·m

APPROCCIO STATICO

MASSIMIZZAZIONE di λ

$M(a) = X \leq M_Y$ → $\boxed{X = M_Y}$

$M(d_1) = \lambda 400 - \frac{8}{3}X \leq M_Y \rightarrow \lambda 400 \leq 11/3\, M_Y$

$M(d_2) = \lambda 200 - \frac{4}{3}X \leq M_Y \rightarrow \lambda 200 \leq 7/3\, M_Y$

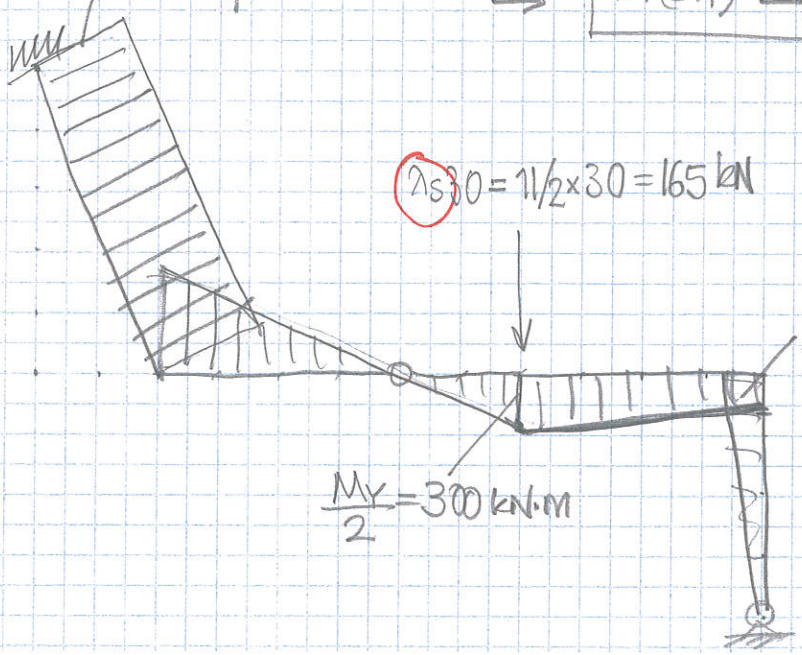
$M(d_3) = \lambda 480 - 4X \leq M_Y \rightarrow \lambda 480 \leq 5 M_Y$

$M(d_1) \rightarrow \lambda \leq 11/1200\, M_Y = 0{,}92\, M_Y/100$ ← $\boxed{\text{PIÙ RESTRITTIVA}}$

$M(d_2) \rightarrow \lambda \leq 7/600\, M_Y = 1{,}17\, M_Y/100$

$M(d_3) \rightarrow \lambda \leq 5/480\, M_Y = 1.04\, M_Y/100$

M_S



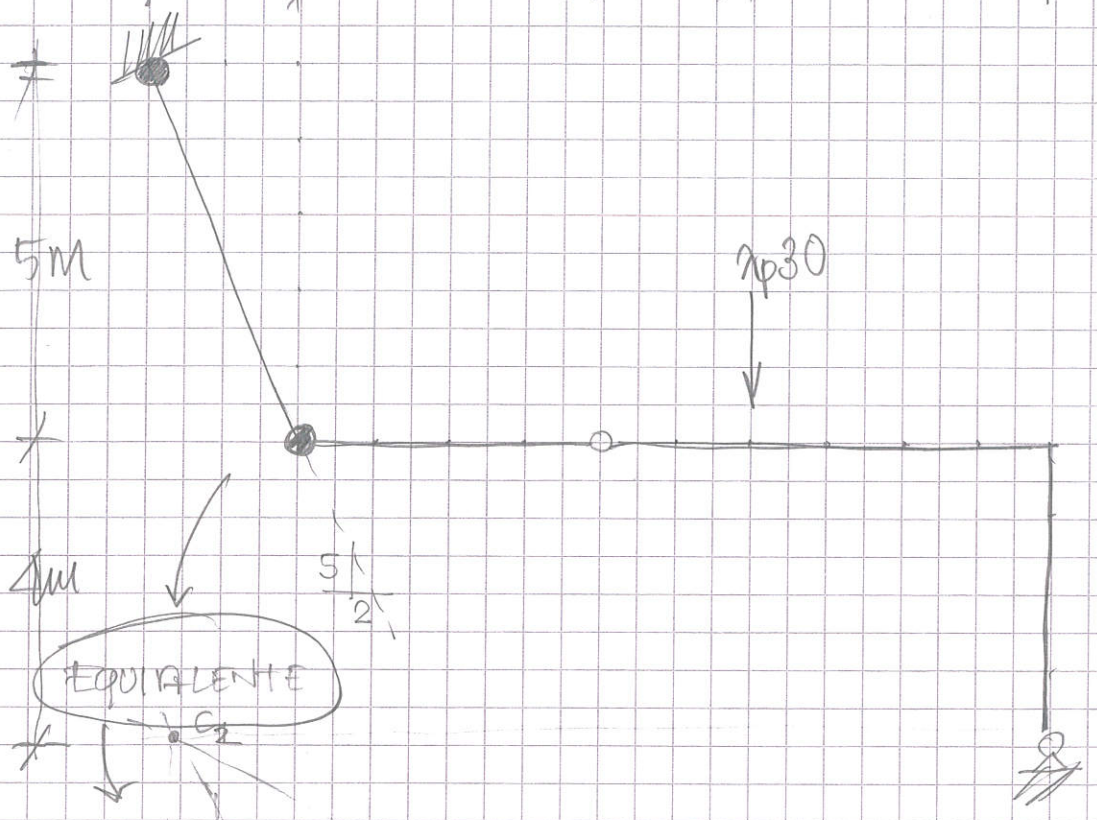
$\Rightarrow \boxed{M(d_1) \equiv M_Y} \Rightarrow \boxed{\lambda_S \equiv \frac{11}{1200} M_Y = \frac{11}{2}}$

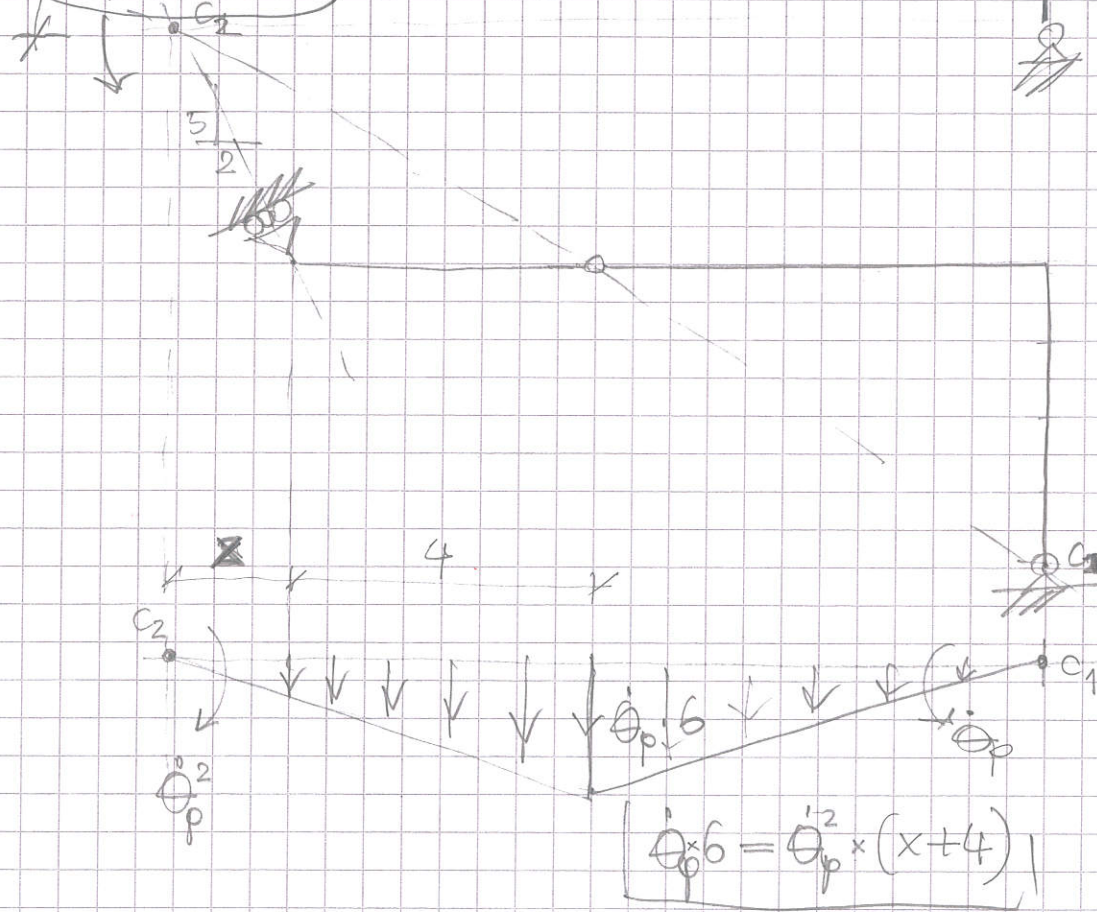
$\Rightarrow M(d_2) = \frac{11}{2}200 - \frac{4}{3}600 = 300$

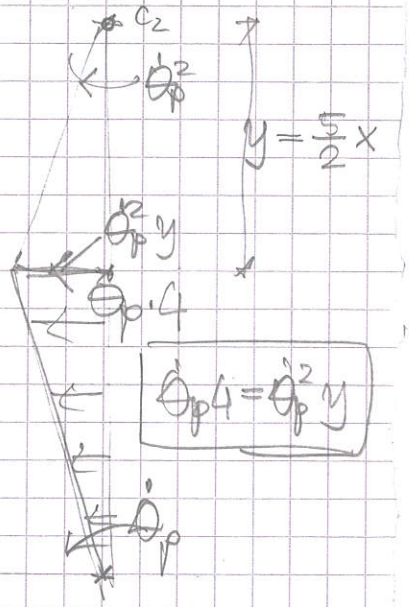
$\Rightarrow M(d_3) = \frac{11}{2}480 - 4 \cdot 600 = 240$

(1/2)

APPROCCIO CINEMATICO





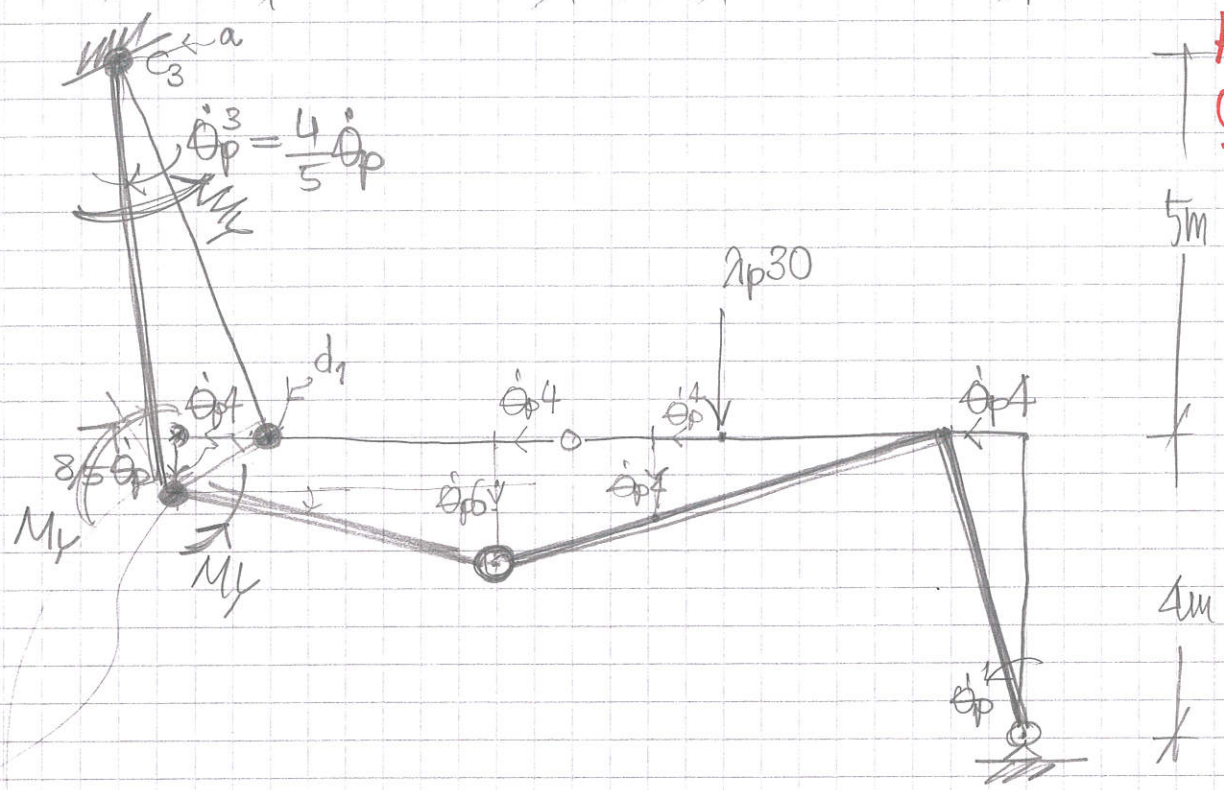


$$\begin{cases} \dot{\theta}_p 6 = \dot{\theta}_p^2 (x+4) \\ \dot{\theta}_p 4 = \dot{\theta}_p^2 y \end{cases} \qquad \frac{x}{y} = \frac{2}{5} \quad \text{(inclinazione carrello)}$$

$$\begin{cases} \dot{\theta}_p 6 = \dot{\theta}_p^2 (x+4) \\ \dot{\theta}_p 4 = \dot{\theta}_p^2 \frac{5}{2} x \Rightarrow x = \frac{8}{5} \frac{\dot{\theta}_p}{\dot{\theta}_p^2} \end{cases} \longrightarrow 6\dot{\theta}_p = \frac{8}{5}\dot{\theta}_p + 4\dot{\theta}_p^2 \Rightarrow \boxed{\dot{\theta}_p^2 = \frac{22}{20}\dot{\theta}_p}$$

$$\Rightarrow \boxed{x = 32/22}$$

(3/2)
APPROCCIO CINEMATICO



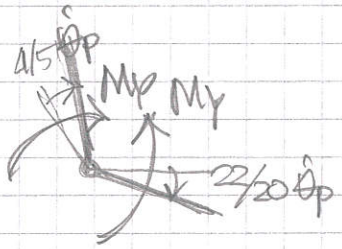
$$\dot\theta_p^2 y = \dot\theta_p^2 \frac{5}{2} x = \frac{22}{20}\dot\theta_p \cdot \frac{5}{2}\frac{32}{22} = 4\dot\theta_p$$

$$\dot\theta_p^2 x = \frac{22}{20}\dot\theta_p \cdot \frac{32}{22} = \frac{8}{5}\dot\theta_p$$

$$\dot\theta_p^3 \cdot \sqrt{2^2+5^2} = \dot\theta_p \sqrt{4^2+\left(\frac{8}{5}\right)^2} \rightarrow \dot\theta_p^3 \sqrt{29} = \dot\theta_p \frac{4}{5}\sqrt{5^2+4} = \frac{4}{5}\sqrt{29}\,\dot\theta_p$$

$$\rightarrow \dot\theta_p^3 = \frac{4}{5}\dot\theta_p$$

in d_1



rotazione relativa $\frac{22}{20}\dot\theta_p - \frac{4}{5}\dot\theta_p$

$$= \frac{22-16}{20}\dot\theta_p = \frac{6}{20}\dot\theta_p$$

$$\text{Potenza} = \lambda p 30 \times 4\dot\theta_p - M_Y\underbrace{\left(\frac{4}{5}\dot\theta_p + \frac{6}{20}\dot\theta_p\right)}_{\frac{22}{20}\dot\theta_p} = 0$$

$$\boxed{\lambda_p = \frac{22}{20}\frac{M_Y}{120} = \frac{11}{2}}$$