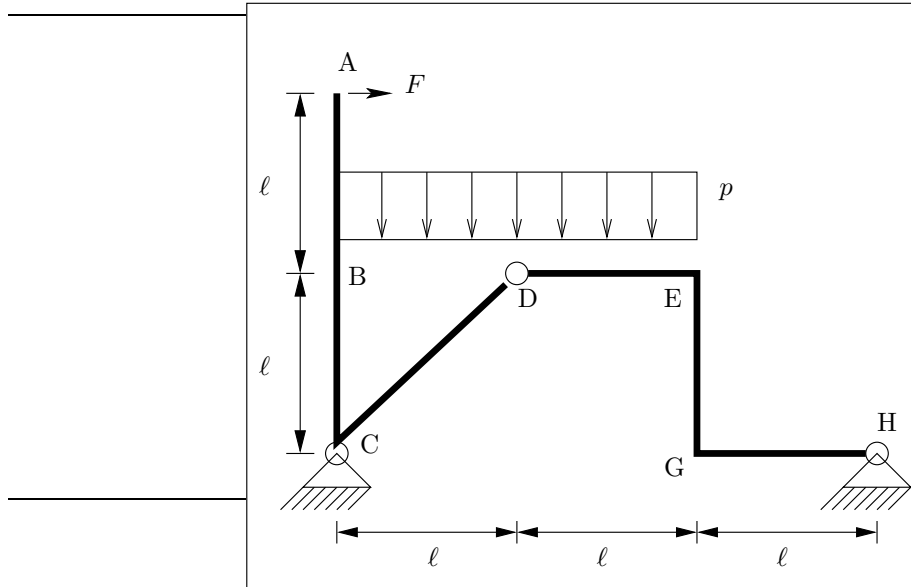


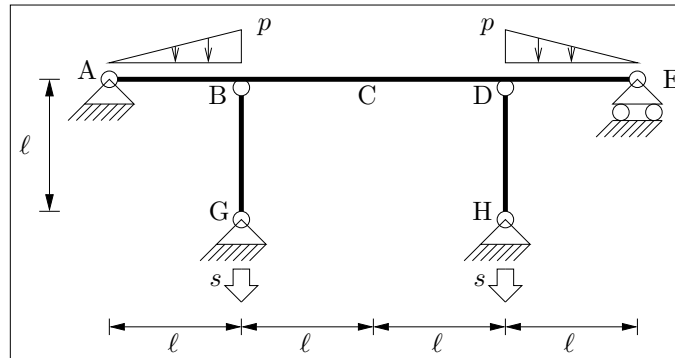
Statica - Ingegneria Civile - Prof. Daniele Zulli

APPELLO DEL 30/6/2026 - DURATA 3 ORE

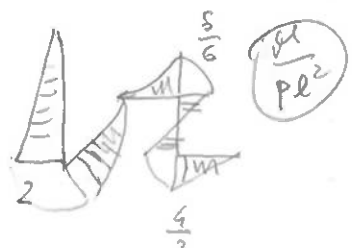
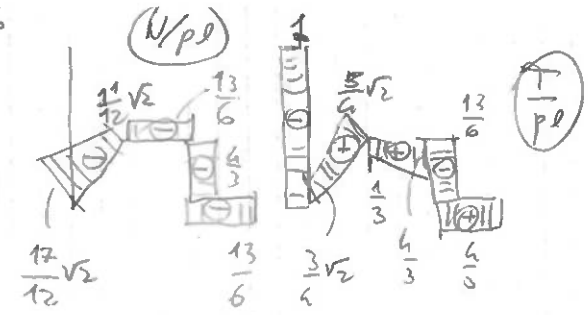
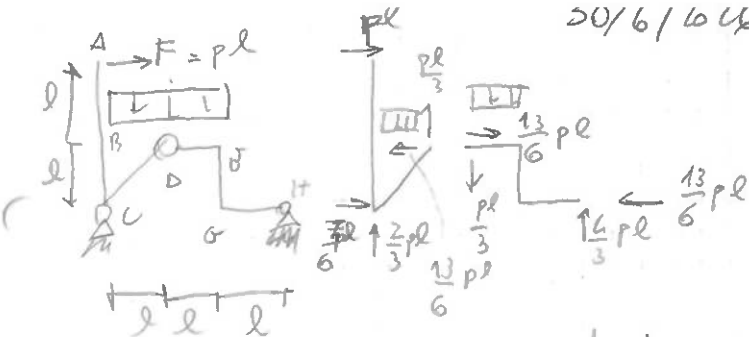
Esercizio 1: Scrivere e diagrammare le leggi di variazione delle caratteristiche di sollecitazione per la struttura in figura, nel caso in cui sia $F = p\ell$. Calcolare la rotazione della sezione in H, noto EI e per $EA \rightarrow +\infty$.



Esercizio 2: Diagrammare le caratteristiche di sollecitazione per la struttura in figura nel caso in cui sia $s = \frac{p\ell^4}{EI}$, $EA = \frac{EI}{\ell^2}$ sui tratti BG e DH, $EA \rightarrow +\infty$ altrove.



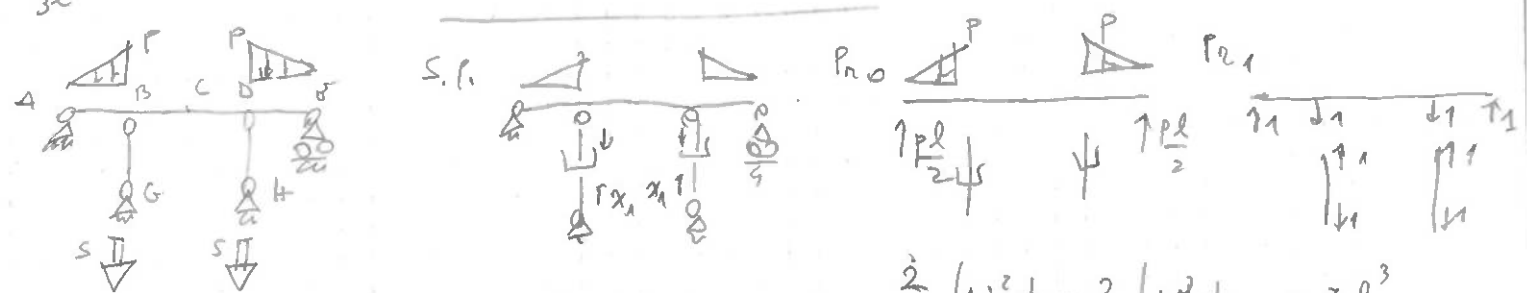
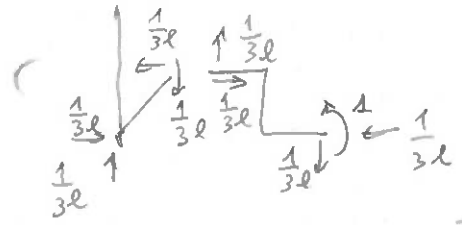
20/6/2016



TRAV	LONG	N	T	M	M*
AB	l	0	-pl	plx	0
BC	l	0	-pl	pl ² +plx	0
DC	lv ₂	$-\frac{11}{12}\sqrt{2}pl - \frac{px}{2}$	$\frac{5\sqrt{2}}{4}pl - \frac{px}{2}$	$-\frac{5\sqrt{2}}{4}plx + \frac{px^2}{4}$	0
DE	0	$-\frac{13}{8}pl$	$-\frac{pl}{2} + px$	$-\frac{pl}{3}x - \frac{px^2}{2}$	$\frac{x}{3l}$
EG	l	$-\frac{4}{3}pl$	$-\frac{13}{6}pl$	$-\frac{5}{6}pl^2 + \frac{13}{6}plx$	$\frac{1}{3} + \frac{x}{3l}$
HG	l	$-\frac{13}{6}pl$	$\frac{4}{3}pl$	$-\frac{4}{3}plx$	$-1 + \frac{x}{3l}$

Pr Vint ($\psi_H = ?$)

$$\psi_H = \frac{1}{EI} \int MM^* dx = \frac{17}{24} \frac{pl^3}{8I} \approx 0.708 \frac{pl^3}{8I}$$



TRAV	LONG	N ₀	M ₀	N ₁	M ₁
AB	l	0	$\frac{pl}{2}x - \frac{px^3}{6l}$	0	x
BC	l	0	$\frac{pl^2}{3}$	0	l
GB	l	0	0	1	0

$$\gamma_{11} = \frac{2}{8I} \int N_1^2 dx + \frac{2}{8I} \int M_1^2 dx = 2 \cdot \frac{7}{3} \frac{l^3}{8I}$$

$$\gamma_{10} = \frac{2}{8I} \int M_0 M_1 dx = 2 \cdot \frac{7}{15} \frac{pl^4}{8I}$$

$$\bar{M}_1 = -2(s) = -2 \frac{pl^4}{8I}$$

$$\chi_1 = - \frac{\gamma_{10} + \bar{M}_1}{\gamma_{11}} = \frac{8}{35} pl$$

