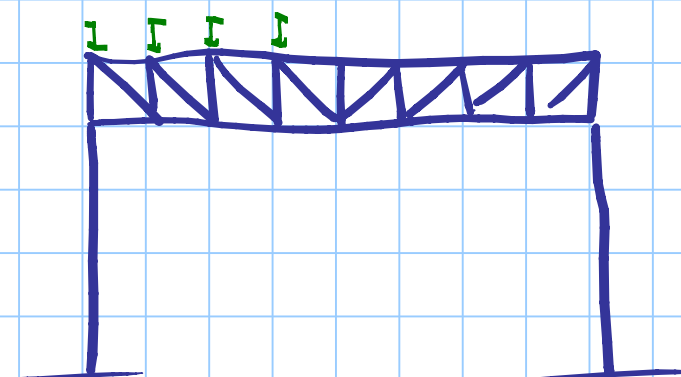
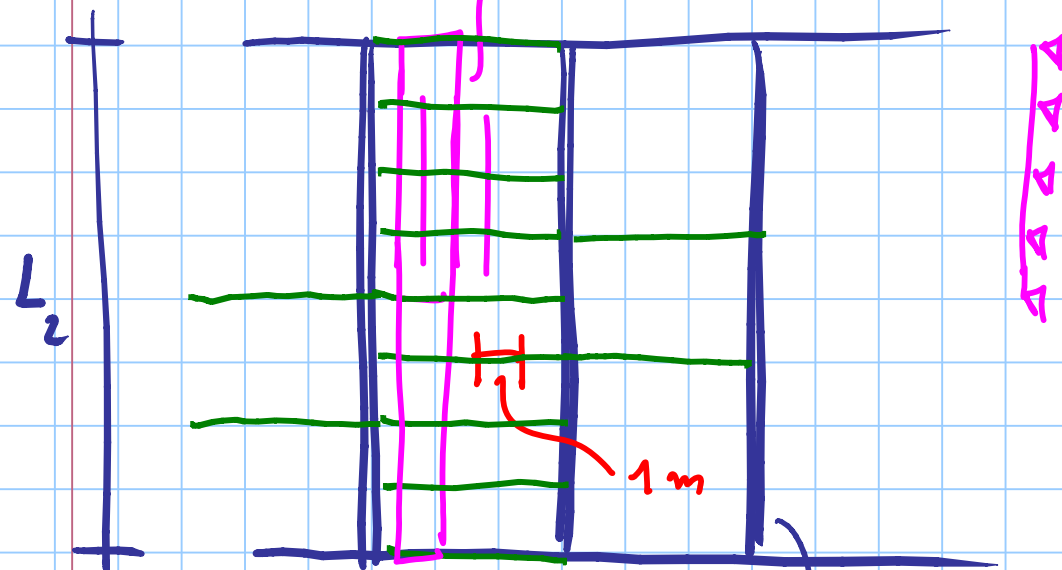


lamiere guaina

2250 mm



$$L_2 = 18.00 \text{ m}$$

$$L_1 = 6.00 \text{ m}$$

Trave
secondaria

Trave
reticolare



scegl. alla lamiera zincata

— peso proprio pannelli

$$? g_h = 0.32 \text{ kN/m}^2 \quad g_d = 0.42 \text{ kN/m}^2$$

— carico di manutenzione

$$g_k = 0.50 \text{ kN/m}^2 \quad g_d = 0.75 \text{ kN/m}^2$$

— carico di neve

$$g_{sk} = 1.13 \text{ kN/m}^2 \quad g_{sd} = 1.70 \text{ kN/m}^2$$

— carico di vento

$$g_{rk} = -0.58 \text{ kN/m}^2 \quad g_{rd} = -0.87 \text{ kN/m}^2$$

neve come princ.

$$g_d = 1.70 + 0 \times 0.75 = 1.70 \text{ kN/m}^2 \quad \Leftarrow$$

manut. princ.

$$g_d = 0.75 + 0.5 \times 1.70 = 1.60 \text{ kN/m}^2$$

$$g_d + g_d = 2.12 \text{ kN/m}^2$$

da INTERNET

m. lte camp. f.

Tip. x

L = 1.50

2.00

2.50

$q = x \cdot k$

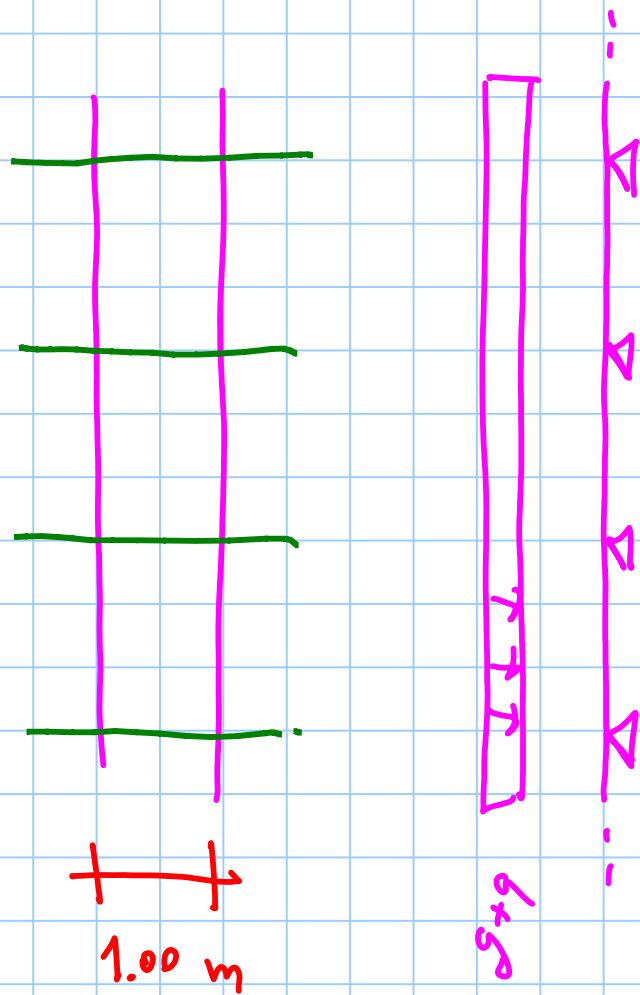


SCELTA

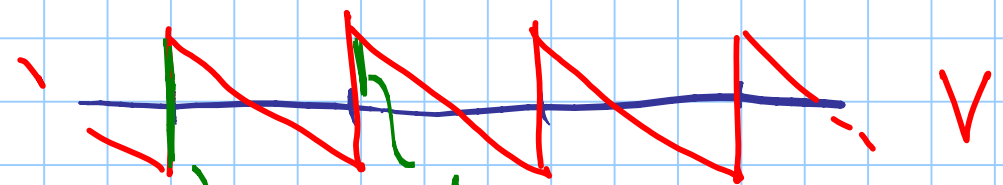
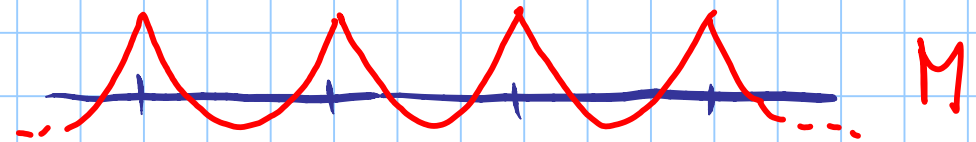
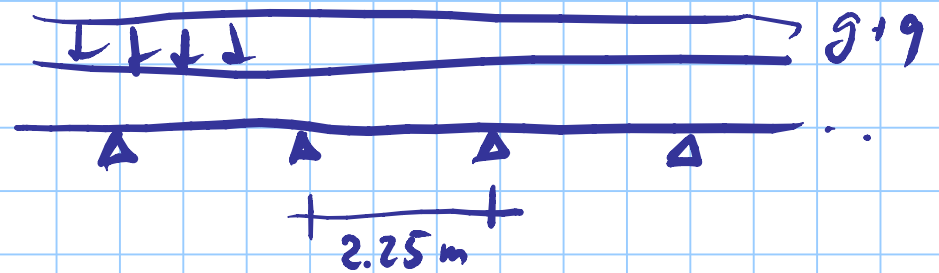
quale pannello

quanto costa

CARICHI SULLA TRAVE SECONDARIA

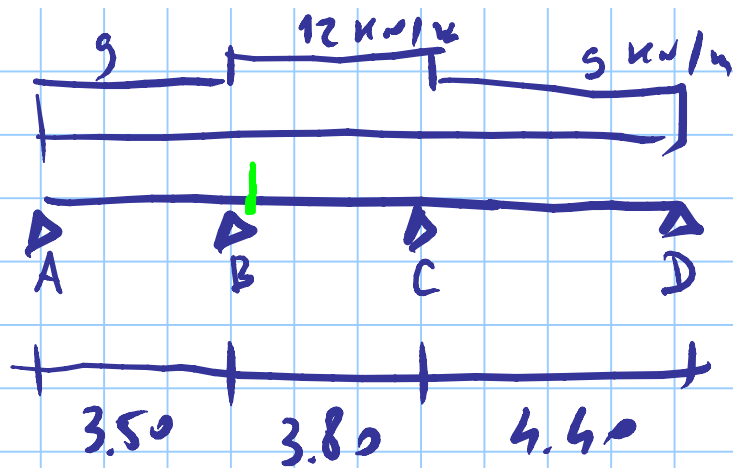


$$1.70 + 0.42 = 2.12 \text{ KN/m}$$

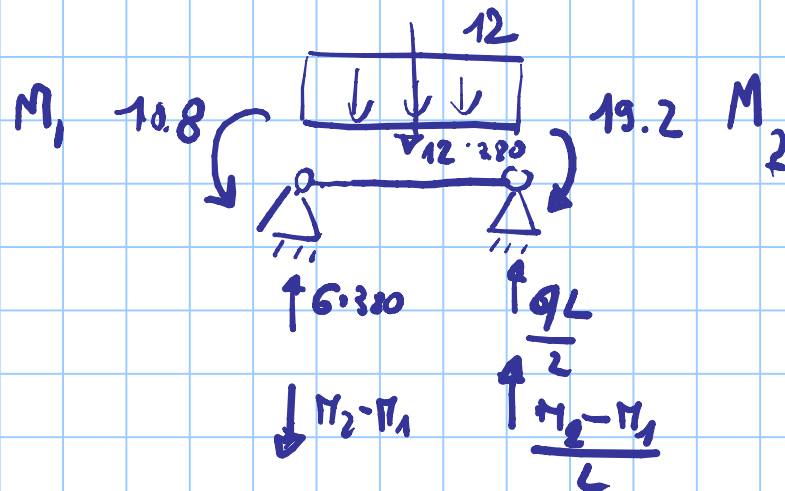
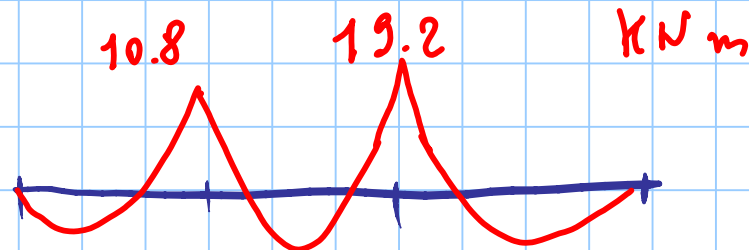
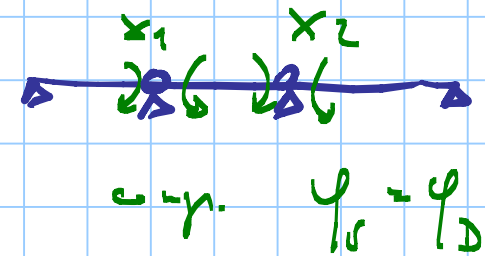


reazione
del vincolo

$$ql = 4.77 \text{ kN}$$



RISOLUZIONE



$$\frac{qL}{2} + \frac{M_2 - M_1}{L}$$

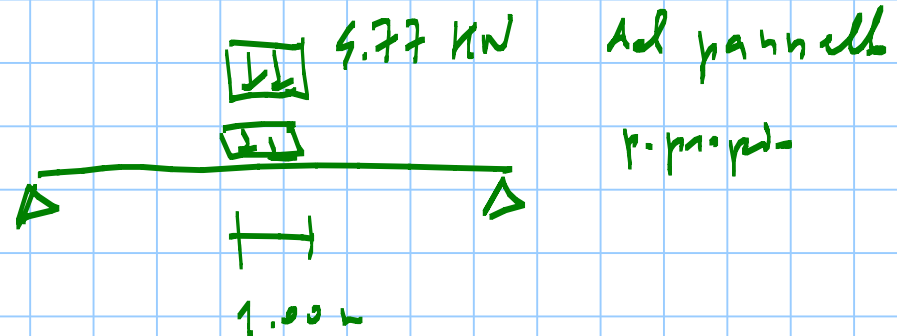
carico unitario max $g_d + q_d = 2.12 \text{ kN/m}^2$

" su fascie 1 m $g_d + q_d = 2.12 \text{ kN/m}$

carico sulla Trave secondaria ($l = 2.25 \text{ m}$) =

$$= 2.12 \times 2.25 = 4.77 \text{ kN}$$

Trave secondaria



carico sulla trave secondaria

$[kN/m]$

dal pannello

pes. propria
 $\rightarrow 1.1 m$

g_1

0.94

0.39

1.33

q_1

3.83

3.83

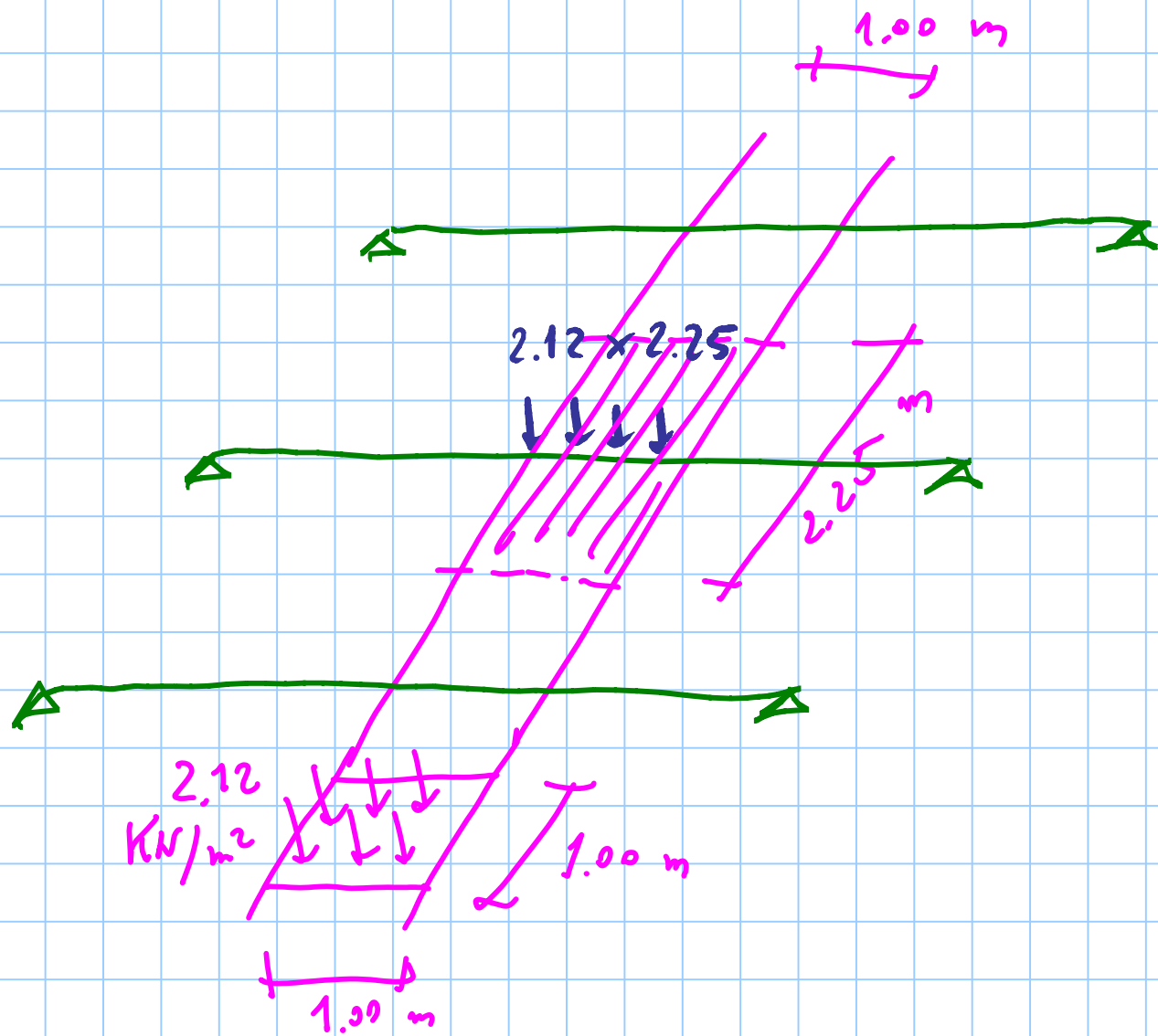
$S_1 + g_1$

4.77

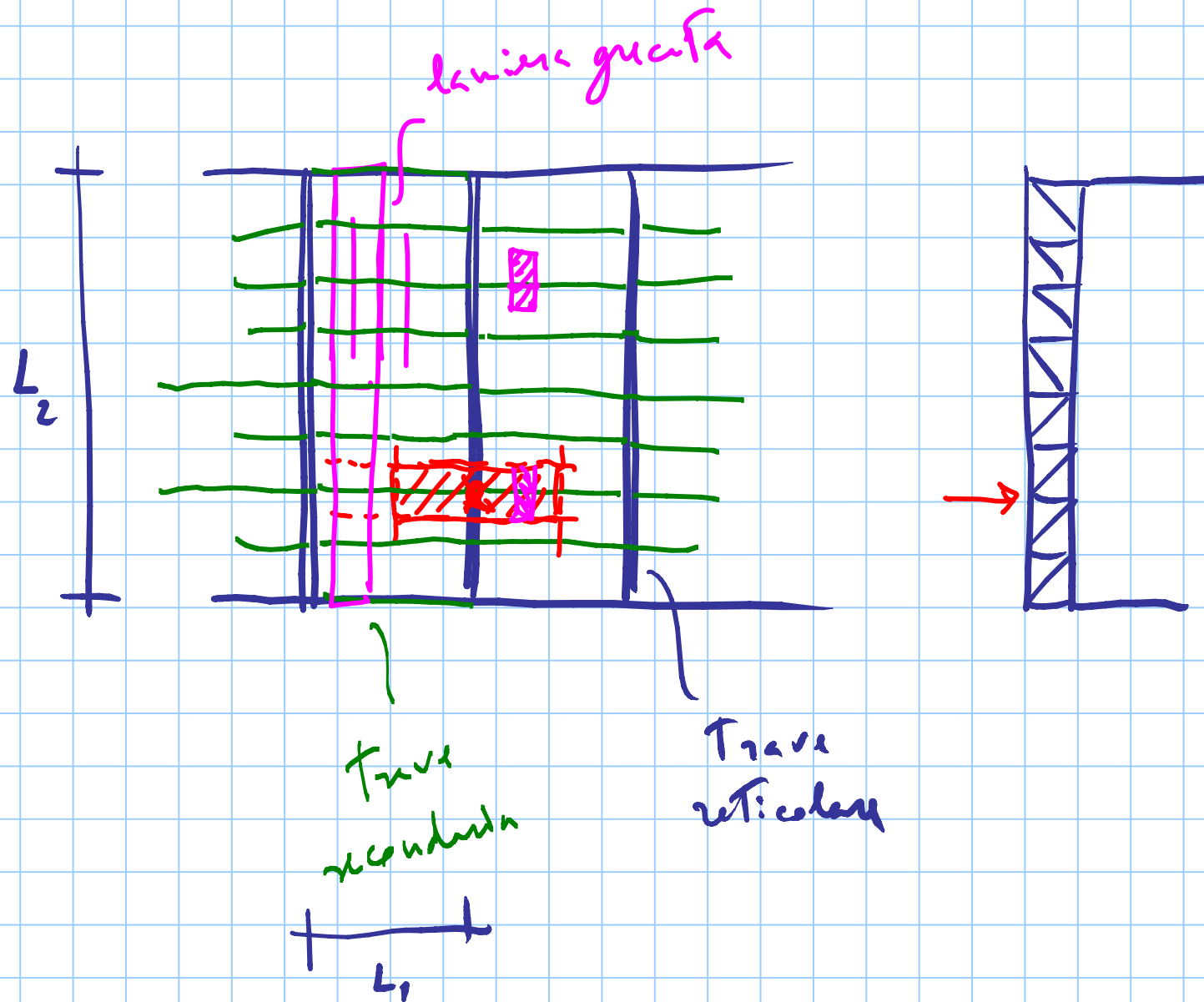
5.16

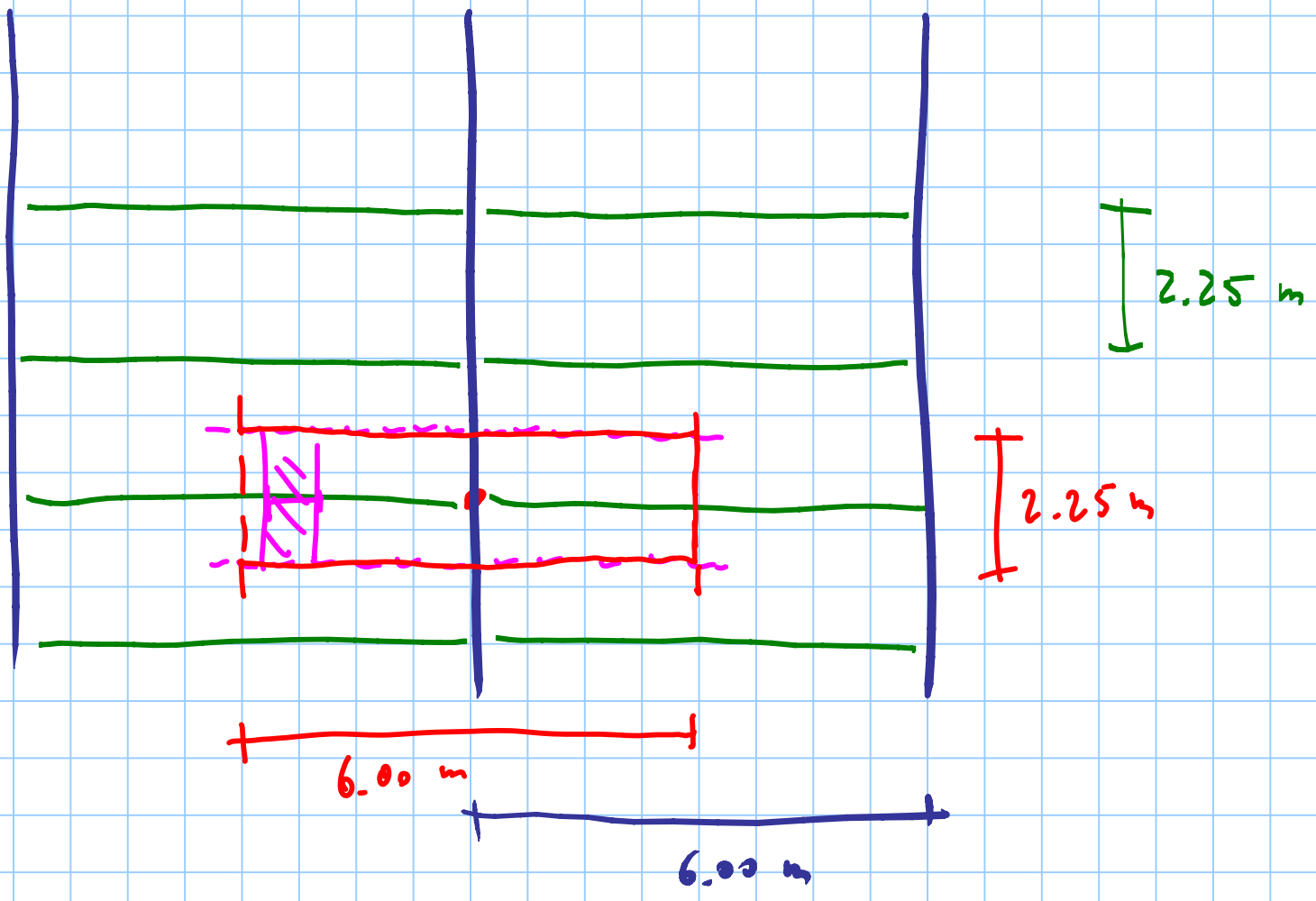
p. propria g_k IPE 240 $\approx 0.3 kN/m$

$$g_1 = 0.3 \times 1.3 = 0.39$$



CARICO SULLA TRAVE RETICOLARE





carico sul nodo [kN]

g_1

q_1

lamiera grigia

p.p.pio $0.42 \text{ kN/m}^2 \times 6 \times 2.25$

5.67

neve 1.70 kN/m^2

22.95

T-neve secondaria

p.p.pio $0.39 \text{ kN/m}^2 \times 6$

2.34

8.01

22.95

$g_1 + q_1 \rightarrow 30.96 \text{ kN} \rightarrow 31.0 \text{ kN}$

se occorrono i valori dei singoli carichi variabili

manutenzione

$$0.50 \times 6 \times 2.25 \times 1.5$$

6.75

10.13

max 1.13

15.26

22.88

Max +

30.84

Vento -0.58

- 7.83

- 11.75

MIN -
- 5.63

penall. $0.32 \times 6 \times 2.25$

4.32

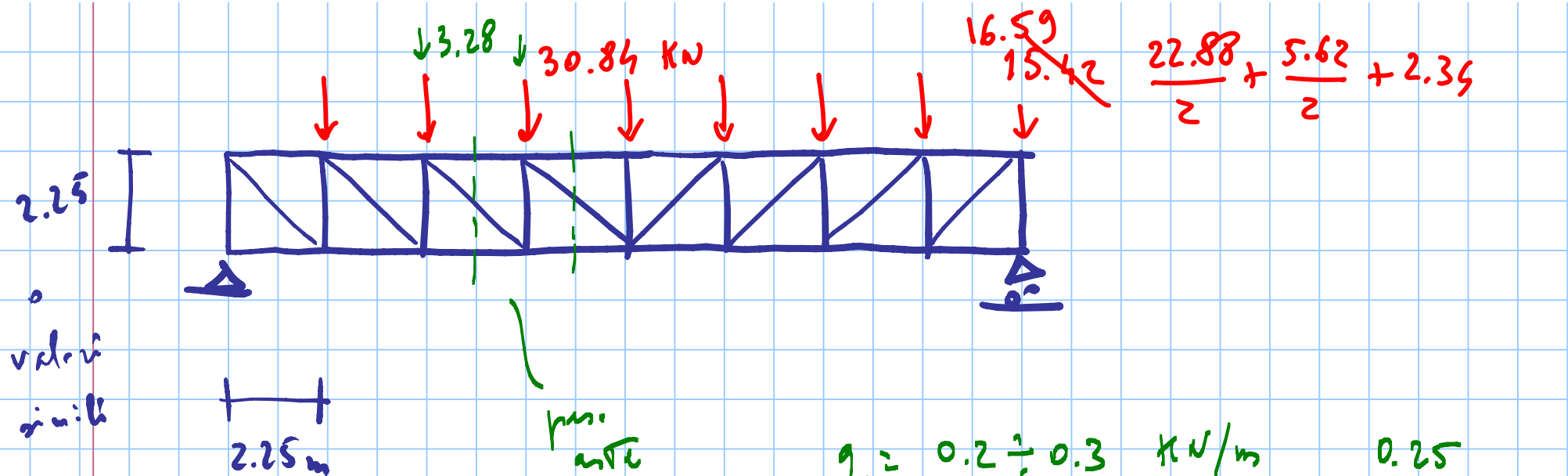
5.62

Torre all. 0.30×6

1.80

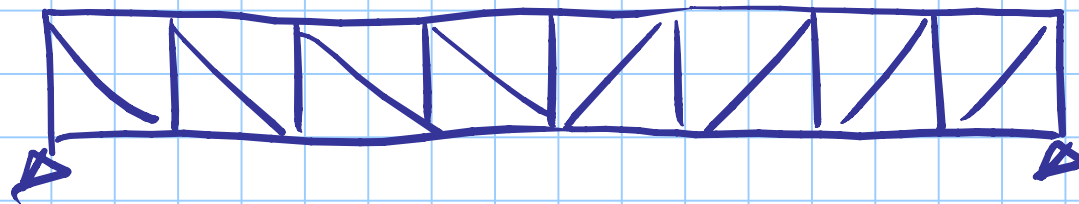
2.34

F_{max} +



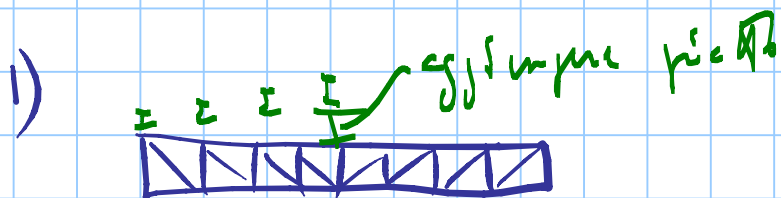
$$L = 2.25 + 2.25 + 2.25 + 2.25\sqrt{2} = 9.93 \text{ m}$$

$$\rightarrow 3.28 \text{ kN}$$

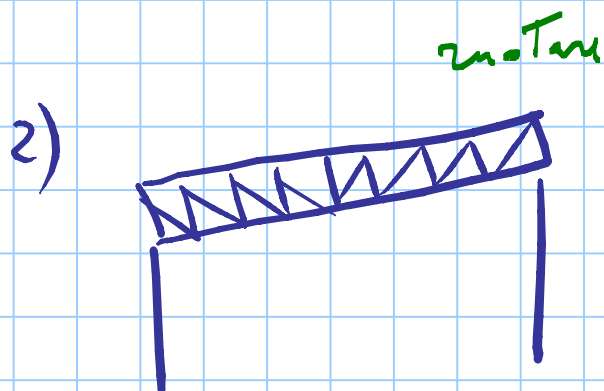


Come dare
pendenza 1%.

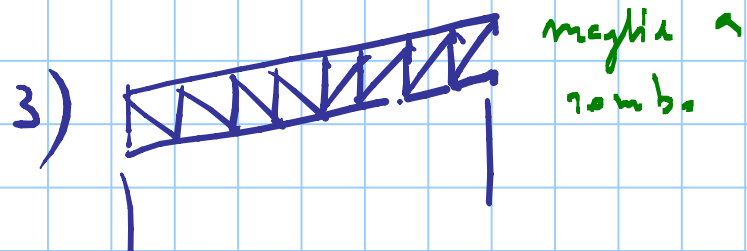
?



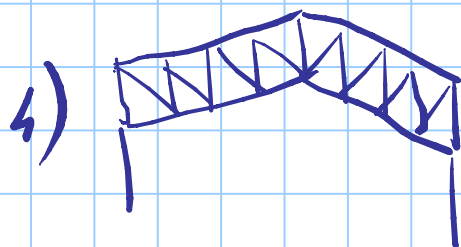
problema : spandi elevati



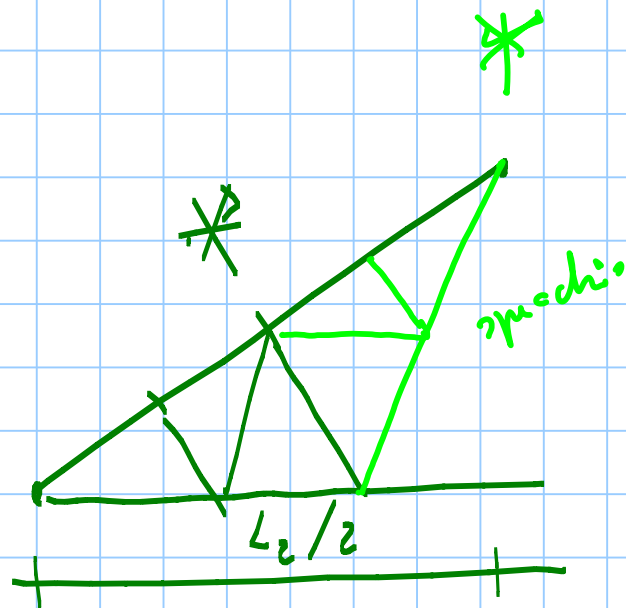
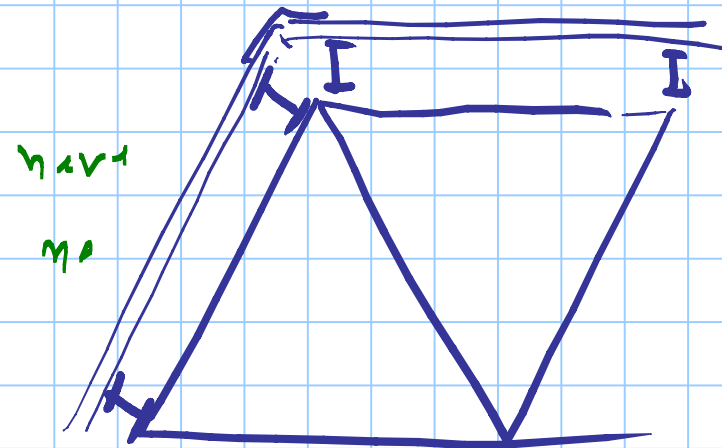
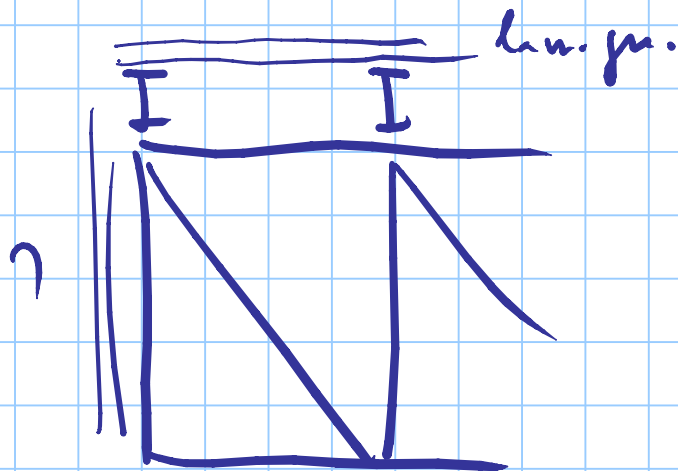
problema : angoli diversi
in facciate



problema: diagonali
diverse



pennelli di dimensioni L_2



$$\geq 0.4 \frac{L_2}{2}$$