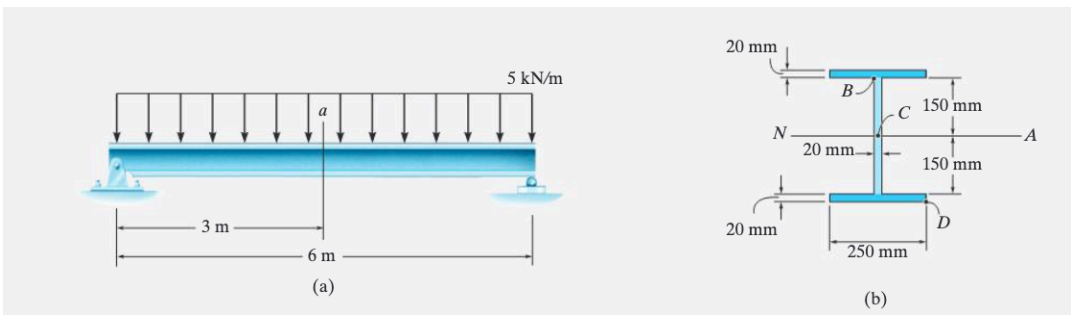
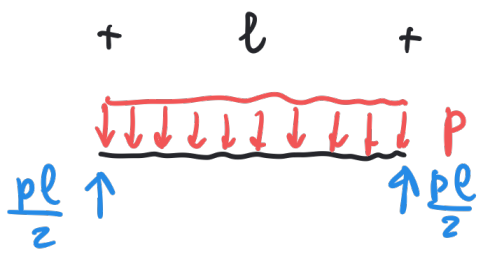
Esempio: sezione "a doppia T"



- Determiniamo il momento massimo

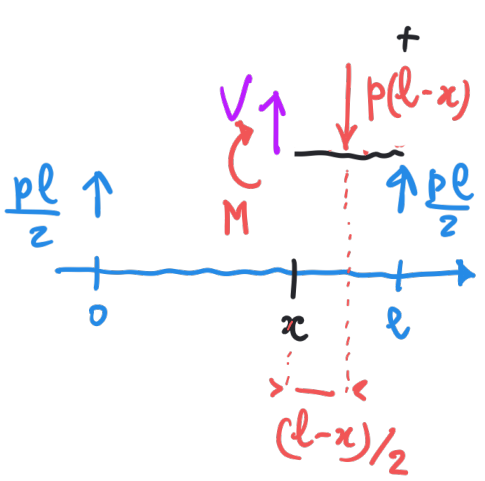
Reazioni vincolari:



Caratt. sollecitaz.

$V = -p\ell/2 - p(x-\ell)$

$= p\left(\frac{\ell}{2} - x\right)$



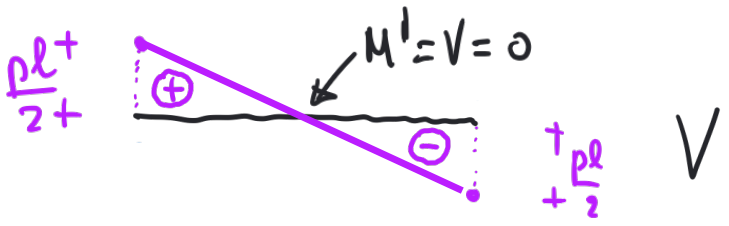
$M = \frac{p\ell}{2}(\ell - x) - p\frac{(\ell-x)^2}{2}$

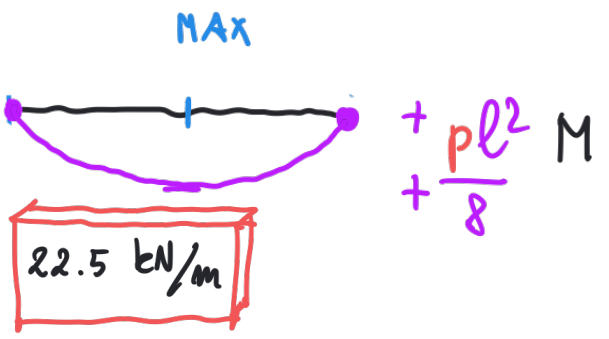
$= \frac{p}{2}x(\ell - x) = -\frac{p}{2}x^2 + \frac{p}{2}\ell x$

$M(\ell/2) = p\ell^2/8$

↑ concavità verso $M<0$

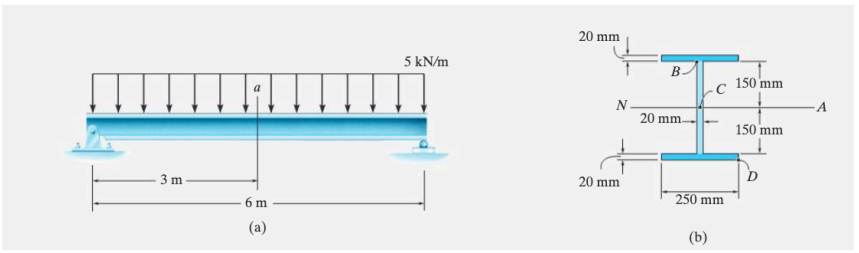
Diagrammi Cds

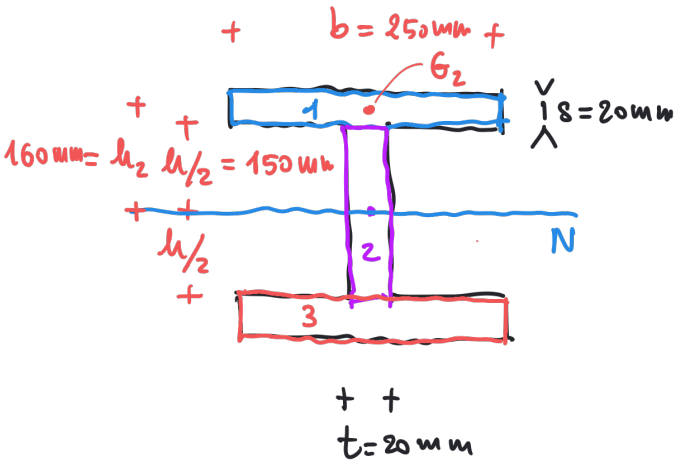




$M_{max} = \frac{p\ell^2}{8} = \frac{(5\,kN/m)(6\,m)^2}{8} =$ **22.5 kN/m**

Esempio: sezione "a doppia T"



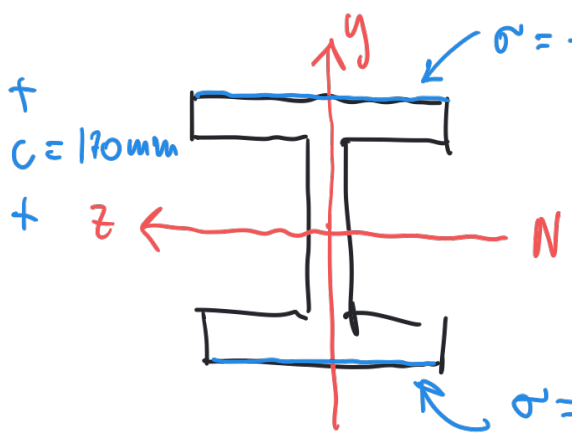


$$I_2 = \frac{1}{12} t h^3 = \frac{1}{12}(0.02\,m)(0.300\,m)^3$$

$$I_1 = \frac{1}{12} b s^3 + b s h_2^2 = \frac{1}{12}(0.25\,m)(0.020\,m)^3 + (0.25\,m)(0.020\,m)(0.160\,m)^2$$

$$I_3 = I_1$$

$$I = I_1 + I_2 + I_3 = 301.3 \cdot 10^{-6}\ m^4$$



$$\sigma = -\frac{M}{I} c = -\frac{(22.5\,kN \cdot m)(0.170\,m)}{(301.3)\cdot 10^{-6} m^4} = -12.7\,MPa$$

$$\sigma = -\frac{M}{I} y$$

$$\sigma = -\frac{M}{I}(-c) = \frac{M}{I} c = 12.7\,MPa$$

Il massimo del valore assoluto di σ è

$$|\sigma|_{max} = 12.7\ MPa$$

Il diagramma della tensione normale è il seguente: