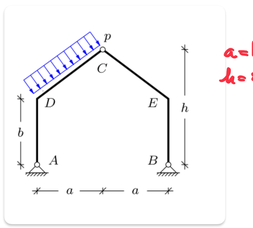
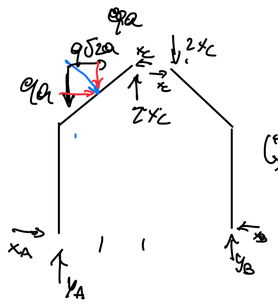


a=b
h=2b



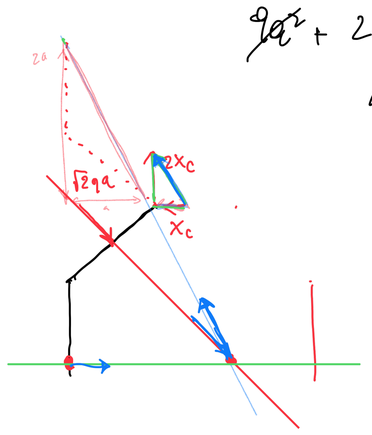
$$\begin{cases} \uparrow \sum F_y = 0 \quad Y_A + 2X_C - qa = 0 \\ X_A - X_C + qa = 0 \\ (+)M_C \quad \frac{qa^2}{2} + \frac{qa^2}{2} + X_A 2a - Y_A a = 0 \end{cases}$$

$$Y_C = 2X_C$$

$$\begin{cases} X_A = X_C - qa \\ Y_A = -2X_C + qa \\ qa^2 + 2a(X_C - qa) - a(-2X_C + qa) = 0 \end{cases}$$

$$qa^2 + 2aX_C - 2qa^2 + 2X_C a - qa^2 = 0$$

$$4X_C a = 2qa^2 \qquad X_C = \frac{2qa}{4} = \frac{qa}{2}$$

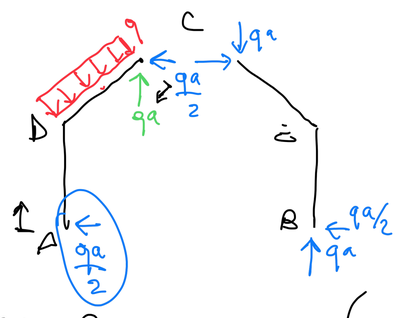


$Y_A = 0$

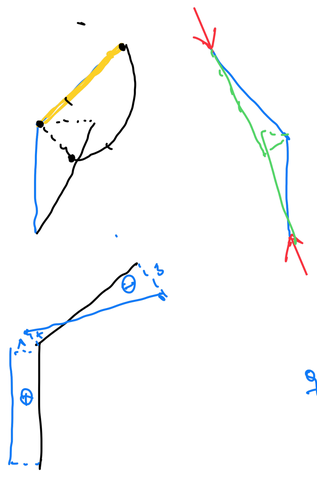
$X_A = -\frac{q}{2}a$

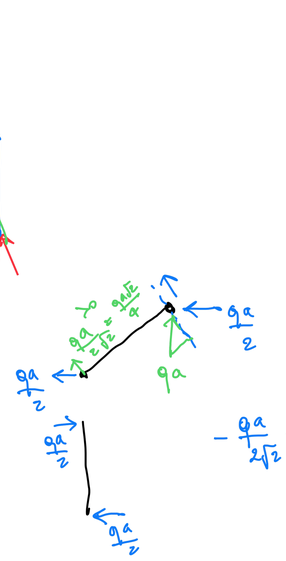
$X_C = \frac{q}{2}a$

$Y_C = qa$



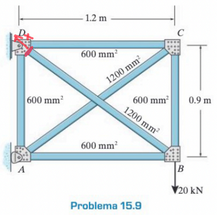
AD $\begin{cases} N(x) = -qa/2 \\ M(x) = -q\frac{a}{2}x \end{cases}$



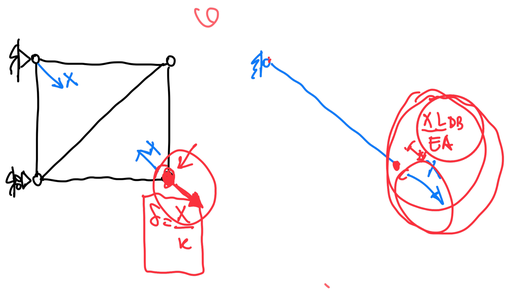


$$-\frac{qa}{2\sqrt{2}} - \frac{qa}{\sqrt{2}} = -\frac{3}{2\sqrt{2}}qa = -\frac{3}{4}\sqrt{2}qa$$

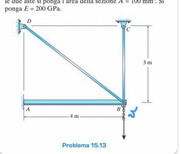
15.9. Si determinino le reazioni vincolari e la forza normale in ogni asta. L'area della sezione di ogni asta è indicata in figura. Tutte le giunzioni sono cerniere. Si ponga $E = 200$ GPa.



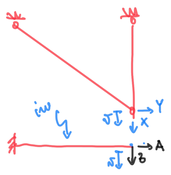
Problema 15.9



15.13. La trave AB è sostenuta in B da due aste. Si determini la forza normale nelle aste. Per la trave si consideri la sola deformabilità flessionale, $I = 200 \cdot 10^6$ mm^4. Per le due aste si ponga l'area della sezione $A = 100$ mm^2. Si ponga $E = 200$ GPa.



Problema 15.13

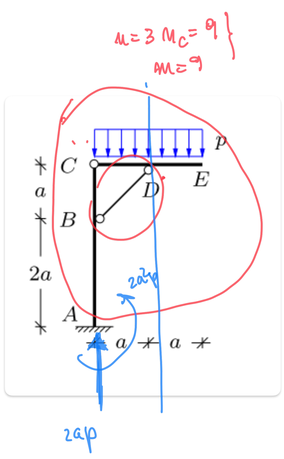


$Y = -A$

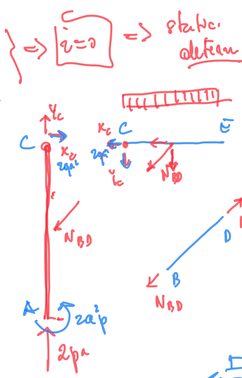
$X + 2 = P$

$r = \frac{X}{K_A}$

$\delta = \frac{2}{K_2}$



$n = m$ $\Rightarrow$ $l = 0$ $\Rightarrow$ $\delta = 0$ $\Rightarrow$ statica determ.



$X_C = -N_{BD}/\sqrt{2} = 2qa$

$Y_C = -N_{BD}/\sqrt{2} - qa = 2qa^2 - 2q$

$\sum M_C = 0 \Rightarrow \frac{N_{BD}}{\sqrt{2}} = -q2a$

$N_{BD} = -\sqrt{2}\,2qa^2$