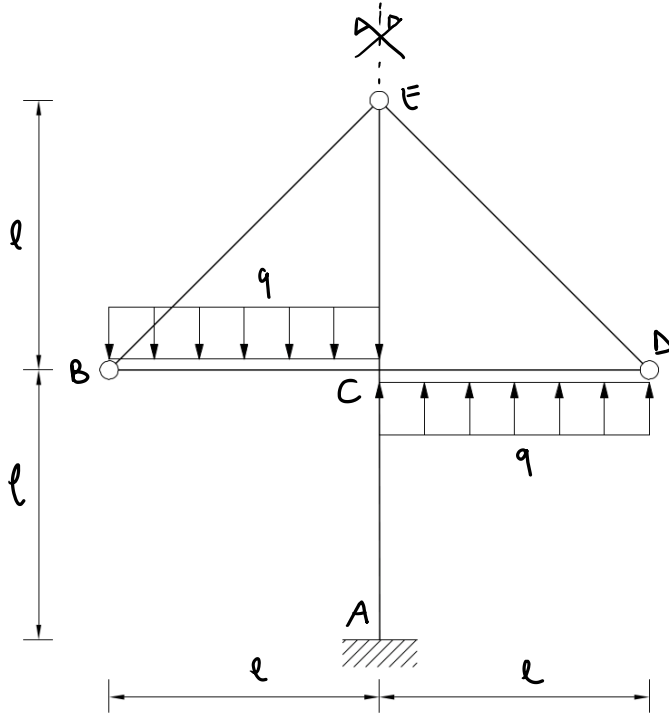


TOTALE DI SDC

08/09/2020

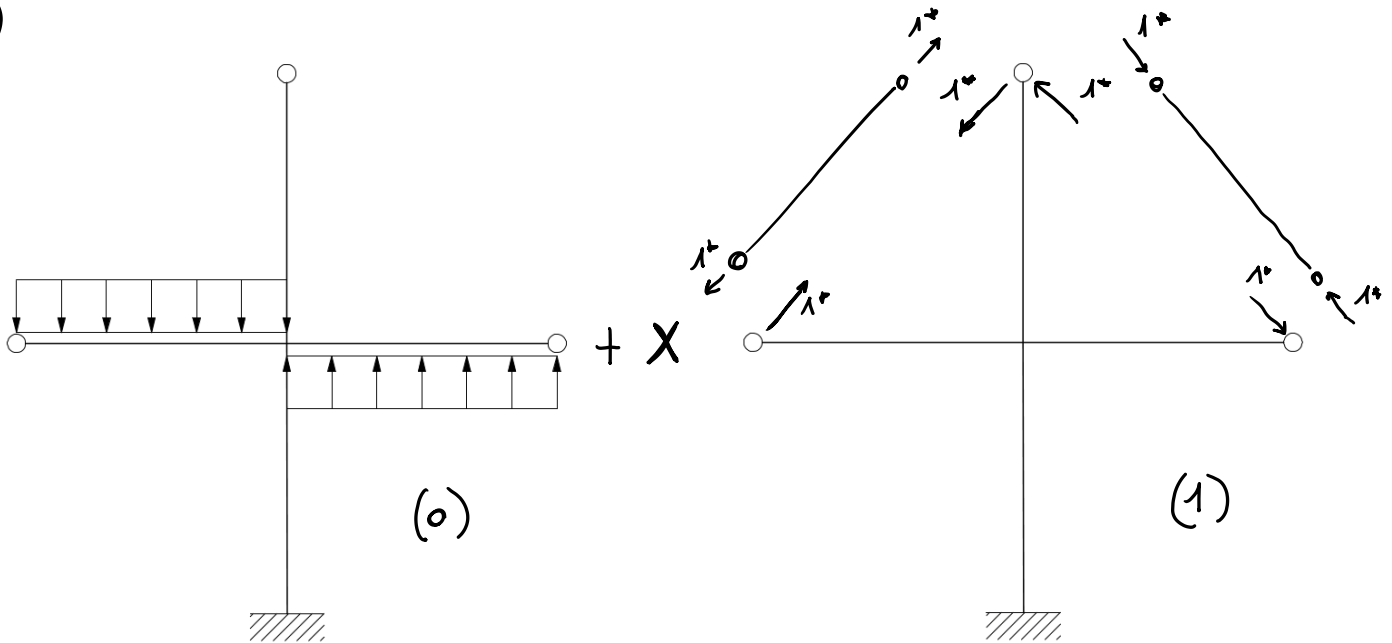


$$q = 1000 \text{ N/m}$$

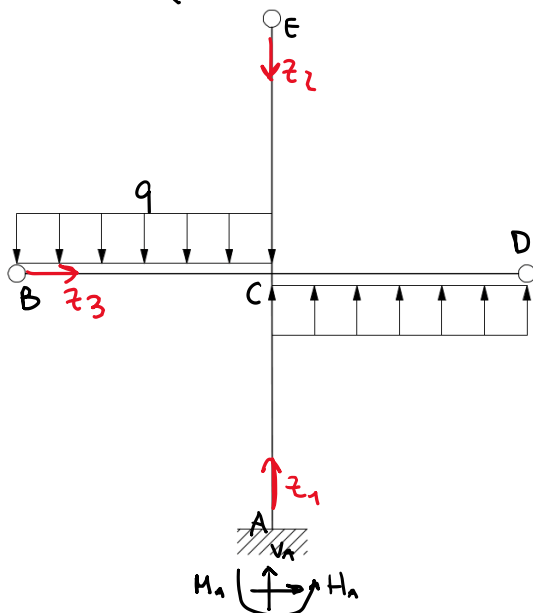
$$l = 3 \text{ m}$$

STRUTTURA ANTISIM

1)



SISTEMA (0)



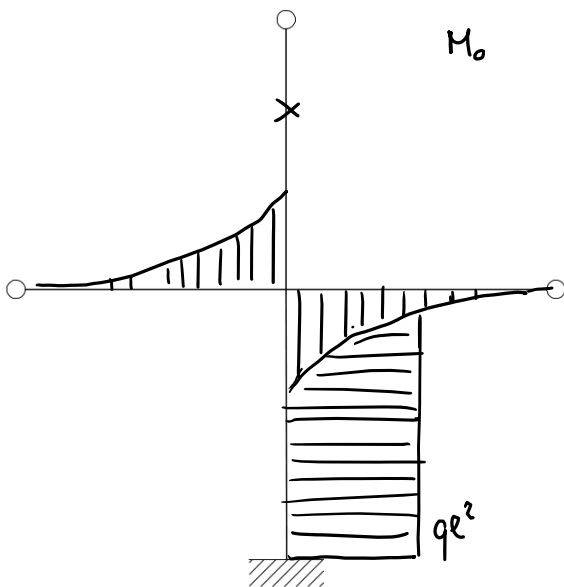
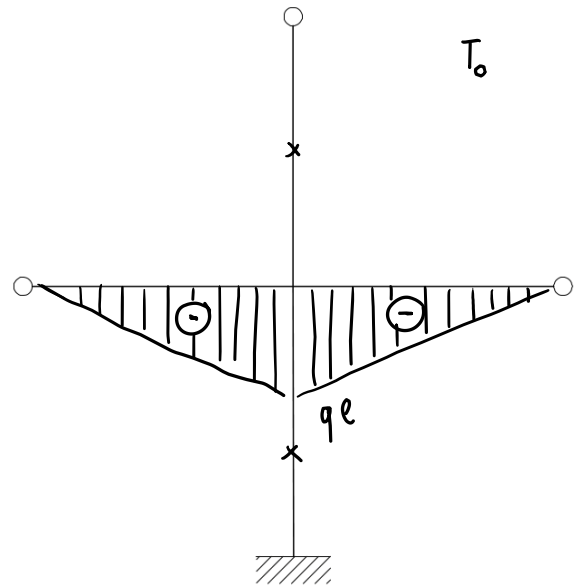
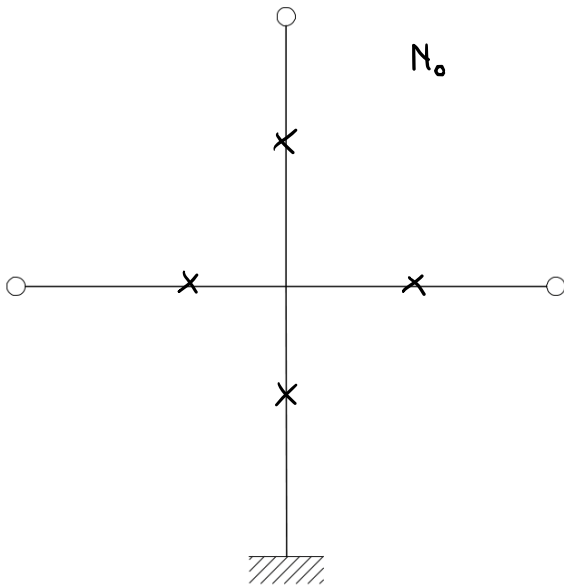
$$\uparrow) V_A + q \cdot l - q \cdot l = 0$$

$$V_A = 0$$

$$\rightarrow) H_A = 0$$

$$A) q \cdot l \cdot \frac{l}{2} + q \cdot l \cdot \frac{l}{2} + M_A = 0$$

$$M_A = - q l^2$$

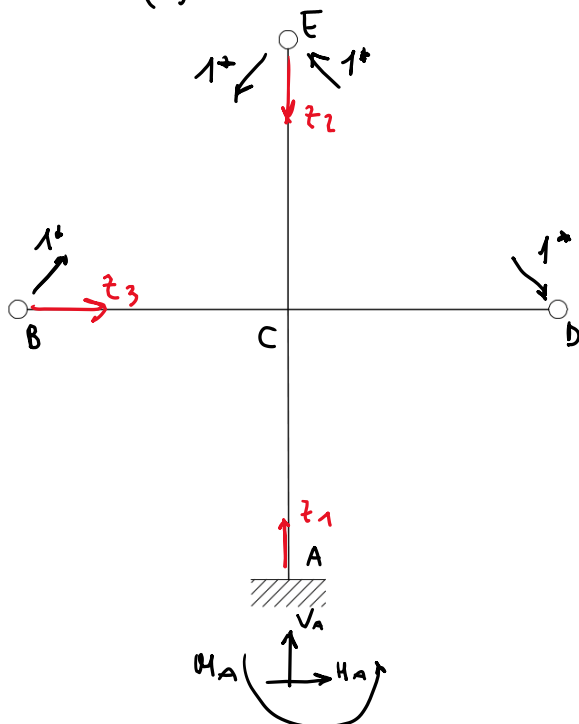


$$T_0(z_3) = -ql$$

$$M_0(z_1) = ql^2$$

$$M_0(z_3) = -\frac{ql^2}{2}$$

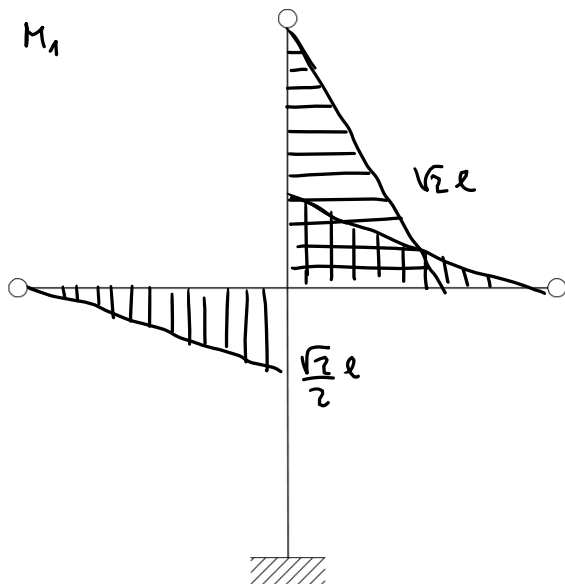
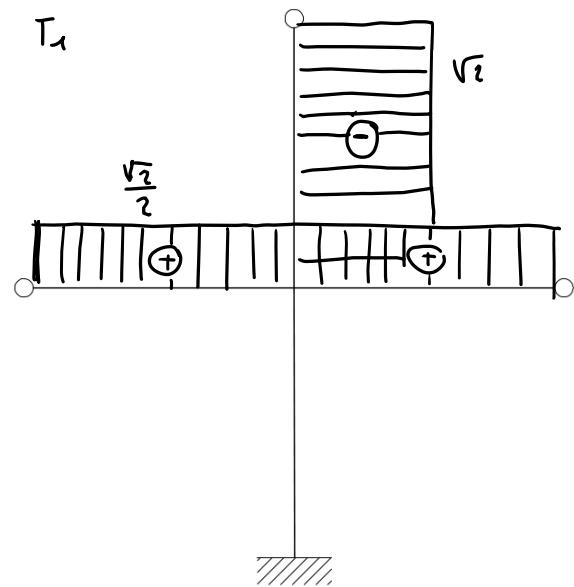
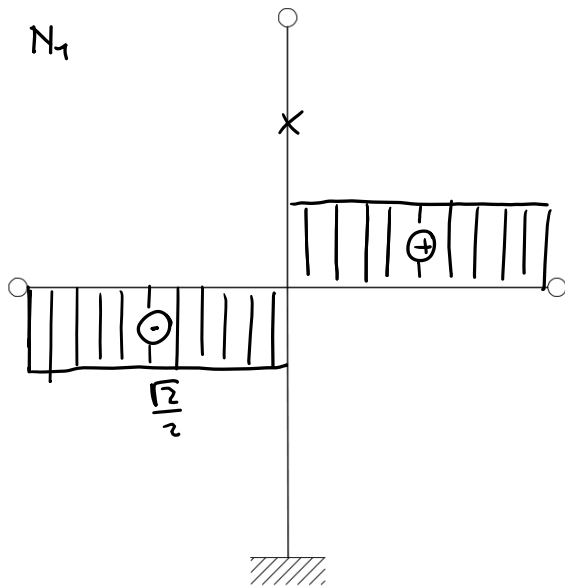
SISTEMA (1)



$$\rightarrow) H_A = 0$$

$$\uparrow) V_A = 0$$

$$A) M_A = 0$$



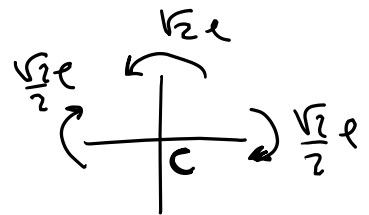
$$N_1(z_3) = -\frac{\sqrt{2}}{2}$$

$$T_1(z_1) = -\frac{\sqrt{2}}{2} - \frac{\sqrt{2}}{2} = -\sqrt{2}$$

$$T_1(z_3) = \frac{\sqrt{2}}{2}$$

$$M_1(z_1) = \sqrt{2}z$$

$$M_1(z_3) = \frac{\sqrt{2}}{2}z$$

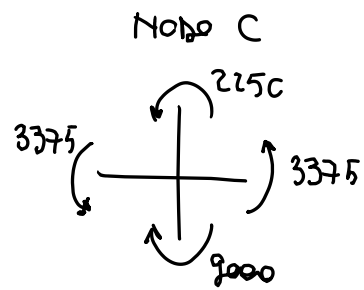
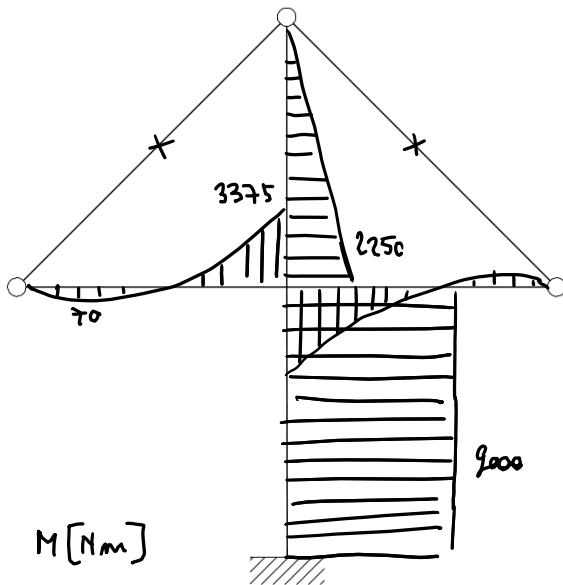
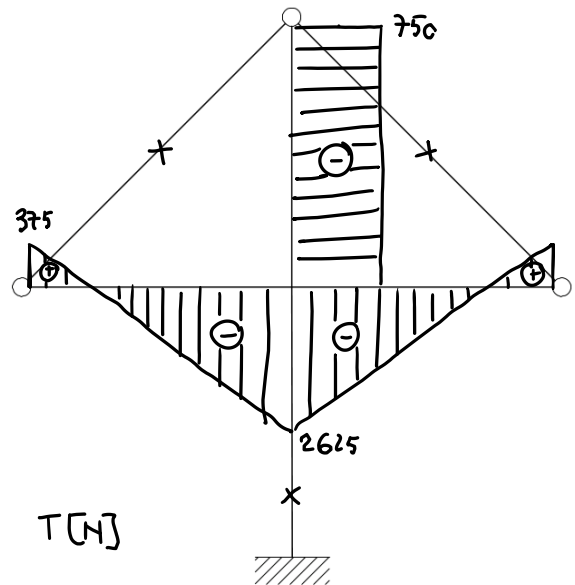
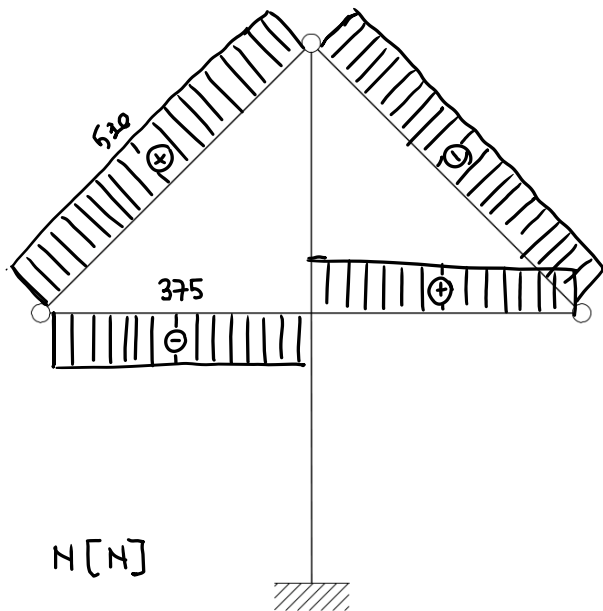


$$M_{10} = \frac{2}{EJ} \int_0^l \left(-\frac{qz^2}{2}\right) \cdot \left(\frac{\sqrt{2}}{2}z\right) dz = -\frac{\sqrt{2}ql^4}{8EJ}$$

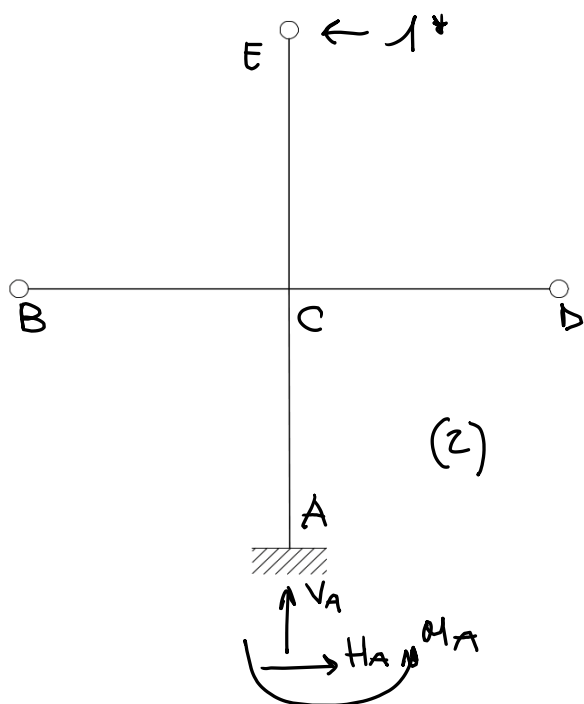
$$M_{11} = \frac{1}{EJ} \int_0^l (2z^2) dz + \frac{2}{EJ} \int_0^l \frac{z^2}{2} dz = \frac{2l^3}{3EJ} + \frac{l^3}{3EJ} = \frac{l^3}{EJ}$$

$$L_{ve} = L_{vi} = 0 \quad 0 = M_{10} + X M_{11}$$

$$X = -\frac{M_{10}}{M_{11}} = \frac{\sqrt{2}ql^4}{8l^3} = \frac{\sqrt{2}ql}{8} = 530 \text{ N}$$



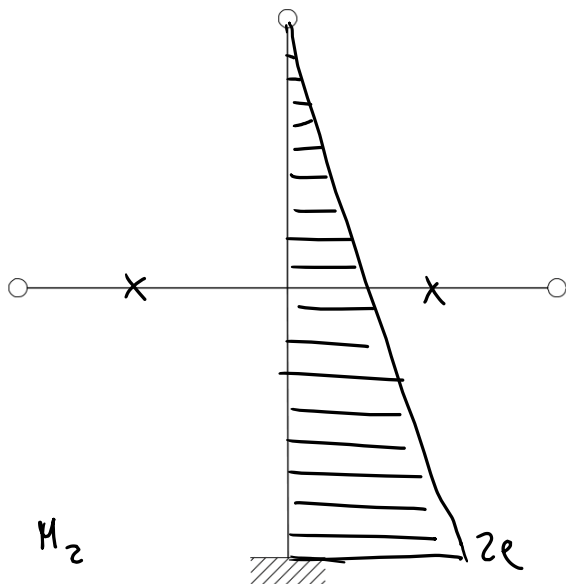
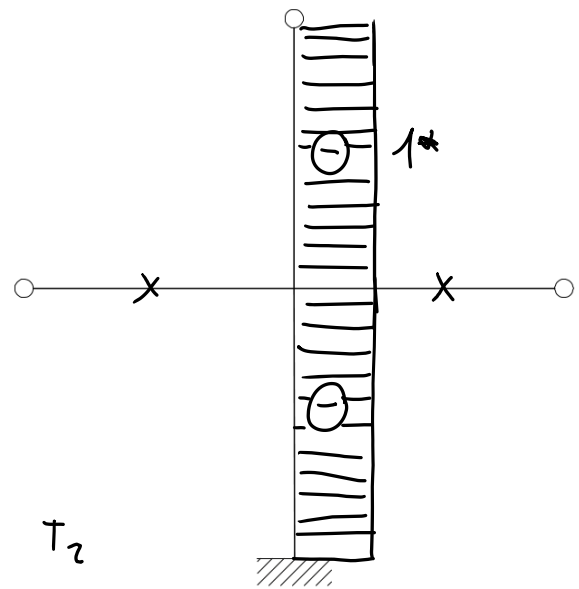
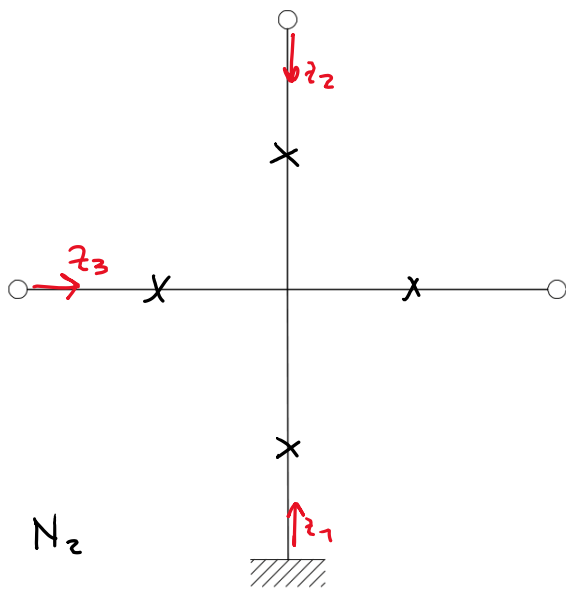
2) SISTEMA (2)



$$\uparrow) V_A = 0$$

$$\rightarrow) H_A - 1 = 0 \quad H_A = 1$$

$$A \curvearrowright 1 \cdot 2l + M_A = 0 \quad M_A = -2l$$



$$T_2(z_1) = T_2(z_2) = -1$$

$$M_2(z_1) = 2\ell - z$$

$$M_1(z_2) = z$$

$$\eta_{20} = \frac{1}{EI} \int_0^\ell (q\ell^2) \cdot (2\ell - z) dz = \frac{3q\ell^4}{2EI}$$

$$\eta_{12} = \frac{1}{EI} \int_0^\ell (\sqrt{2}z) \cdot (z) dz = \frac{\sqrt{2}\ell^3}{3EI}$$

$$L_E = 1^{\frac{1}{2}} \cdot \omega_E$$

$$L_{vi} = \eta_{10} + \eta_{20} + X(\eta_{11} + \eta_{12})$$

$$L_{vE} = L_{vi} \Rightarrow \omega_E = 192,2 \text{ mm}$$