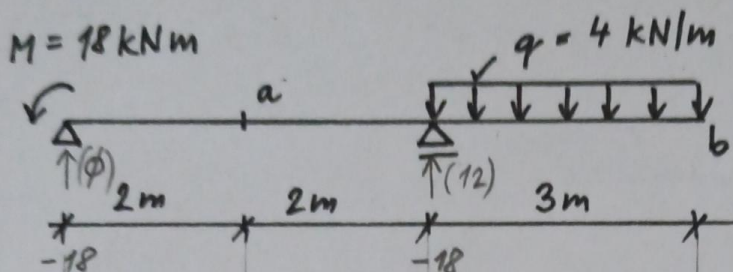


 0,4
0,4 [m]



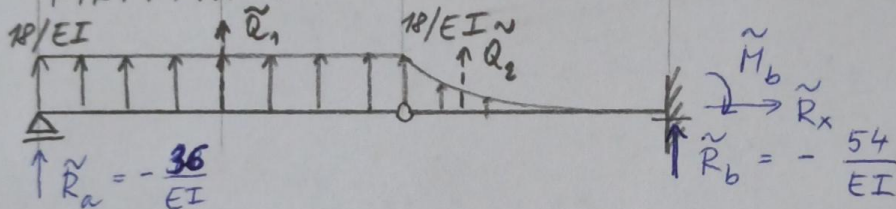
$$I = \frac{1}{12} \cdot 0,4 \cdot 0,4^3$$

$$I = 2,13 \cdot 10^{-3} \text{ m}^4$$

$$EI = 64000 \text{ kPa} \cdot \text{m}^4$$



MOHRHOVA METODA:
FIKTIVNÍ NOSNÍK:



$$\underline{\underline{w_a = \tilde{M}_a = \tilde{R}_a \cdot 2 + \frac{1P}{EI} \cdot 2 \cdot 1 = \frac{-36}{EI} \cdot 2 + \frac{36}{EI} = \frac{-36}{EI} = -5,625 \cdot 10^{-4} \text{ m}}}$$

$$\underline{\varphi_b = \tilde{V}_b = -\tilde{R}_b = \frac{54}{EI} = 8,4375 \cdot 10^{-4} \text{ rad}}$$

CLERICOVA METODA

$$M(x) = -18 \mid +12(x-4) - 4 \frac{(x-4)^2}{2}$$

$$\varphi(x) = -\frac{1}{EI} \left[C_1 - 18x \right]_{x>4} + 12 \frac{(x-4)^2}{2} - 2 \frac{(x-4)^3}{3}$$

$$w(x) = -\frac{1}{EI} \left[C_2 + C_1 x - 18 \frac{x^2}{2} \right]_{x>4} + 6 \frac{(x-4)^3}{3} - \frac{2}{3} \frac{(x-4)^4}{4}$$

OKRAJOVÉ PODMÍNKY:

$$w(x=0) = 0 \quad ; \quad \underline{C_2 = 0}$$

$$w(x=4)=0: \quad 4C_1 - 18 \cdot \frac{4^2}{2} = 0 \Rightarrow \underline{\underline{C_1 = 36}}$$

$$\underline{w_a} = w(x=2) = -\frac{1}{64000} [0 + 36 \cdot 2 - 9 \cdot 2^2] = \frac{-36}{64000}$$

$$= -5,625 \cdot 10^{-4} \text{ m}$$

$$\underline{\varphi_b} = \varphi(x=7) = -\frac{1}{64000} [36 - 18 \cdot 7 + 6 \cdot 3^2 - \frac{2}{3} \cdot 3^3] = \frac{54}{64000}$$

$$= 8,4375 \cdot 10^{-4} \text{ rad}$$

pro x' jdoucí zprava (ZBYTEČNĚ SLOŽITÉ)

$$M(x') = -4 \cdot \frac{x'^2}{2} \Big|_{x>3} + 4 \frac{(x'-3)^2}{2} + 12(x'-3)$$

$$\varphi(x') = -\frac{1}{EI} \left[C_1 - 2 \frac{x'^3}{3} \Big|_{x>3} + 2 \frac{(x'-3)^3}{3} + 12 \frac{(x'-3)^2}{2} \right]$$

$$w(x') = -\frac{1}{EI} \left[C_2 + C_1 x' - \frac{2}{3} \cdot \frac{x'^4}{4} \Big|_{x>3} + \frac{2}{3} \frac{(x'-3)^4}{4} + 6 \frac{(x'-3)^3}{3} \right]$$

OKRAJOVÉ PODMÍNKY:

$$w(x'=3) = 0 : C_2 + 3C_1 - 13,5 = 0$$

$$w(x'=7) = 0 : C_2 + 7C_1 - 229,5 = 0 \quad | \cdot (-1)$$

$$-4C_1 + 216 = 0 \Rightarrow \underline{C_1 = 54}$$

$$\underline{C_2 = -148,5}$$

$$\underline{w_a} = w(x'=5) = -\frac{1}{64000} \left[-148,5 + 54 \cdot 5 - \frac{2}{3} \cdot \frac{5^4}{4} + \frac{2}{3} \cdot \frac{2^4}{4} + 2 \cdot 2^3 \right]$$

$$= \frac{-36}{64000} = \underline{-5,625 \cdot 10^{-4} \text{ m}}$$

$$\underline{\varphi_b} = \ominus \varphi(x'=0) = - \left(-\frac{1}{64000} \right) \cdot [54] = \frac{54}{64000} = 8,4375 \cdot 10^{-4} \text{ rad}$$

↑
OPAČNÉ ZNAČENÍ PŘI VÍPOČTU ZPRAVA!