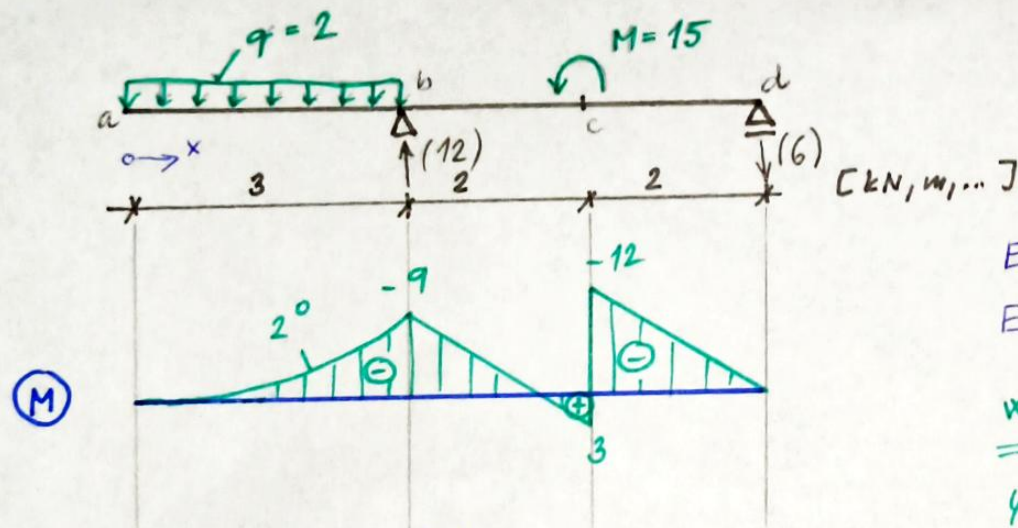


úroveň w_a a φ_d .

$$E = 20 \text{ GPa}$$

$$\begin{array}{c} \text{0,4} \\ \text{0,3} \end{array}$$



$$EI = 20 \cdot 10^6 \cdot \frac{1}{12} \cdot 0,3 \cdot 0,4^3$$

$$EI = 32000 \text{ kPa} \cdot \text{m}^4$$

$$\underline{w_a} = -\frac{1}{32000} [-48,75] = \underline{1,523 \cdot 10^{-3} \text{ m}}$$

$$\begin{aligned} \underline{\varphi_d} &= -\frac{1}{32000} \left[18,5 - \frac{2 \cdot 7^3}{6} + 12 \cdot \frac{4^2}{2} + \right. \\ &\quad \left. + 2 \cdot \frac{4^3}{6} - 15 \cdot 2 \right] = \\ &= \underline{2,65625 \cdot 10^{-4} \text{ rad}} \end{aligned}$$

CLEBSCHOVA METODA:

$$M(x) = -2 \frac{x^2}{2} \Big|_{x>3} + 12(x-3) + 2 \frac{(x-3)^2}{2} \Big|_{x>5} - 15(x-5) \Big|_{x>5}$$

$$\varphi(x) = -\frac{1}{EI} \left[C_1 - \frac{2x^3}{6} \Big|_{x>3} + 12 \frac{(x-3)^2}{2} + 2 \frac{(x-3)^3}{6} \Big|_{x>5} - 15(x-5) \Big|_{x>5} \right]$$

$$w(x) = -\frac{1}{EI} \left[C_2 + C_1 x - \frac{2x^4}{24} \Big|_{x>3} + 12 \frac{(x-3)^3}{6} + 2 \frac{(x-3)^4}{24} \Big|_{x>5} - 15 \frac{(x-5)^2}{2} \Big|_{x>5} \right]$$

okrajové podmínky:

$$\begin{aligned} w_b = w(x=3) = 0 &\Rightarrow C_2 + 3C_1 - 6,75 = 0 \\ w_d = w(x=7) = 0 &\Rightarrow C_2 + 7C_1 - 80,75 = 0 \end{aligned} \quad \left. \vphantom{\begin{aligned} w_b = w(x=3) = 0 \\ w_d = w(x=7) = 0 \end{aligned}} \right\} \Rightarrow 4C_1 = 74 \Rightarrow \underline{C_1 = 18,5}$$

$$\underline{C_2 = -48,75}$$