

$$w_b, \varphi_c = ?$$

$$M(x) = -q \cdot x \cdot \frac{x}{2} \Big|_{x>4} + q \frac{(x-4)^2}{2} \Big|_{x>5} - F \cdot (x-5)$$

$$M(x) = -x^2 \Big|_{x>4} + \frac{(x-4)^2}{2} \Big|_{x>5} - 6 \cdot (x-5)$$

$$EI w'' = -M(x)$$

$$EI w'' = x^2 \Big|_{x>4} - \frac{(x-4)^2}{2} \Big|_{x>5} + 6(x-5)$$

$$* EI w' = C_1 + \frac{x^3}{3} \Big|_{x>4} - \frac{(x-4)^3}{3} \Big|_{x>5} + 6 \frac{(x-5)^2}{2}$$

$$** EI w = C_2 + C_1 x + \frac{x^4}{12} \Big|_{x>4} - \frac{(x-4)^4}{12} \Big|_{x>5} + 3 \frac{(x-5)^3}{3}$$

$$** w(x=6) = 0 \Rightarrow C_2 + C_1 \cdot 6 + \frac{6^4}{12} - \frac{2^4}{12} + 1^3 = 0$$

$$C_2 = 326,3$$

$$* \varphi(x=6) = 0 \Rightarrow C_1 + \frac{6^3}{3} - \frac{2^3}{3} + 6 \frac{1^2}{2} = 0$$

$$C_1 = -72,3$$

$$\varphi(x) = \frac{1}{EI} \left[-72,3 + \frac{x^3}{3} \Big|_{x>4} - \frac{(x-4)^3}{3} \Big|_{x>5} + 3(x-5)^2 \right]$$

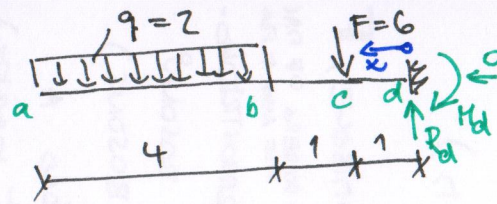
$$w(x) = \frac{1}{EI} \left[326,3 - 72,3x + \frac{x^4}{12} \Big|_{x>4} - \frac{(x-4)^4}{12} \Big|_{x>5} + (x-5)^3 \right]$$

$$w(x=4) = \frac{1}{EI} \left[326,3 - 72,3 \cdot 4 + \frac{4^4}{12} \right] = \frac{58,3}{EI}$$

$$\varphi(x=5) = \frac{1}{EI} \left[-72,3 + \frac{5^3}{3} - \frac{1^3}{3} \right] = -\frac{31}{EI}$$

opačné znaménko,

pretože sme šli jednou zľava a druhú zprava



$$\sum M_{di} = 0 \oplus$$

$$q \cdot 4 \cdot \left(\frac{4}{2} + 2 \right) + F \cdot 1 - M_d = 0$$

$$M_d = 38 \text{ kNm}$$

$$\sum M_{ci} = 0 \oplus$$

$$q \cdot 4 \cdot \left(1 + \frac{4}{2} \right) + R_d \cdot 1 - M_d = 0$$

$$\sum F_{zi} = 0$$

$$2 \cdot 4 + 6 - 14 = 0$$

$$0 = 0 \checkmark$$

$$R_d = 14 \text{ kN}$$

zprava:

$$M(x) = -M_d + R_d \cdot x \Big|_{x>1} - F(x-1) \Big|_{x>2} - q \frac{(x-2)^2}{2}$$

$$M(x) = -38 + 14x \Big|_{x>1} - 6(x-1) \Big|_{x>2} - \frac{(x-2)^2}{2}$$

$$EI w'' = 38 - 14x \Big|_{x>1} + 6(x-1) \Big|_{x>2} + \frac{(x-2)^2}{2}$$

$$EI w' = C_1 + 38x - 14 \frac{x^2}{2} \Big|_{x>1} + 6 \frac{(x-1)^2}{2} \Big|_{x>2} + \frac{(x-2)^3}{3}$$

$$EI w = C_2 + C_1 x + 38 \frac{x^2}{2} - 7 \frac{x^3}{3} \Big|_{x>1} + 3 \frac{(x-1)^3}{3} \Big|_{x>2} + \frac{(x-2)^4}{12}$$

$$\varphi(x=0) = 0 \Rightarrow C_1 = 0$$

$$w(x=0) = 0 \Rightarrow C_2 = 0$$

$$\varphi(x) = \frac{1}{EI} \left[38x - 7x^2 \Big|_{x>1} + 3(x-1)^2 \Big|_{x>2} + \frac{(x-2)^3}{3} \right]$$

$$w(x) = \frac{1}{EI} \left[19x^2 - \frac{7}{3}x^3 \Big|_{x>1} + (x-1)^3 \Big|_{x>2} + \frac{(x-2)^4}{12} \right]$$

$$\varphi(x=1) = \frac{1}{EI} [38 \cdot 1 - 7 \cdot 1^2] = \frac{31}{EI}$$

$$w(x=2) = \frac{1}{EI} \left[19 \cdot 2^2 - \frac{7}{3} \cdot 2^3 + 1^3 \right] = \frac{58,3}{EI}$$