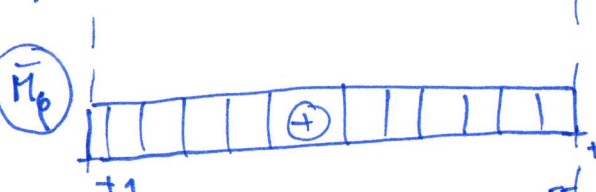
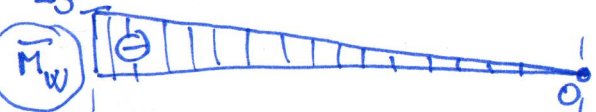
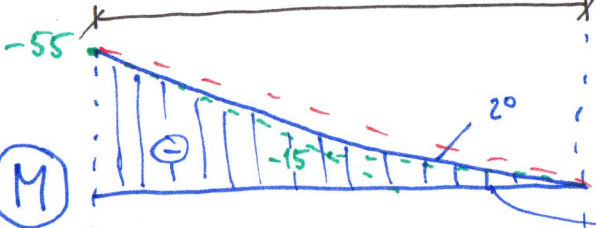
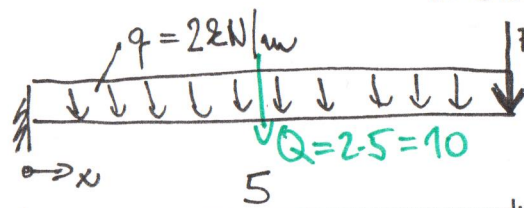


JME'NO:

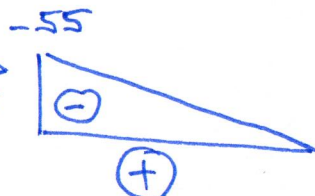


$$W(x=5m) = ?$$

$$\varphi(x=5m) = ?$$

$$E = 210 \text{ GPa}$$

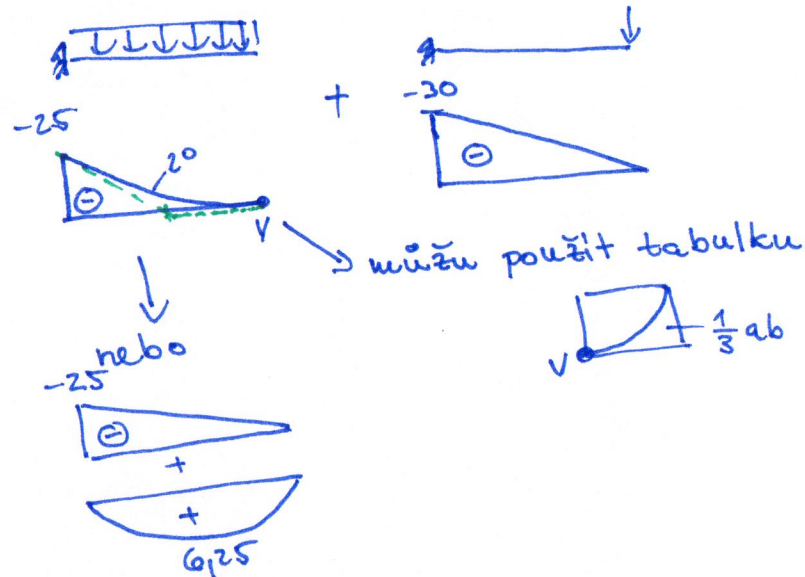
$$I = 2140 \text{ cm}^4 \text{ (I200)}$$



$$\frac{1}{8} q l^2 = \frac{1}{8} \cdot 2 \cdot 5^2 = 6.25$$

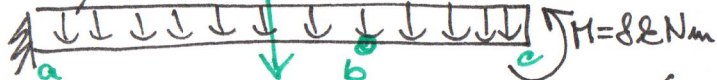
$$W(x=5) = \frac{1}{EI} \int M \bar{M}_w dx = \frac{1}{EI} \left[+\frac{1}{2} \cdot 55 \cdot 5 \cdot \left(\frac{2}{3} \cdot 5\right) - \frac{2}{3} \cdot 6.25 \cdot 5 \cdot \left(\frac{1}{2} \cdot 5\right) \right] = \frac{406.25}{EI} = \frac{406.25 \cdot 10^3}{210 \cdot 10^9 \cdot 2140 \cdot 10^{-8}} = 0.0904 \text{ m} = 90.4 \text{ mm}$$

$$\varphi(x=5) = \frac{1}{EI} \int M \bar{M}_\varphi dx = \frac{1}{EI} \left[-\frac{1}{2} \cdot 55 \cdot 5 \cdot 1 + \frac{2}{3} \cdot 6.25 \cdot 5 \cdot 1 \right] = \frac{-116.6}{EI} = \frac{-116.6 \cdot 10^3}{210 \cdot 10^9 \cdot 2140 \cdot 10^{-8}} = -0.02596 \text{ rad}$$



JMENO:

$q = 4 \text{ kN/m}$ $a = 20$



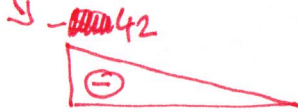
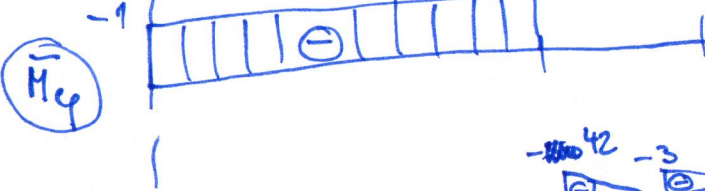
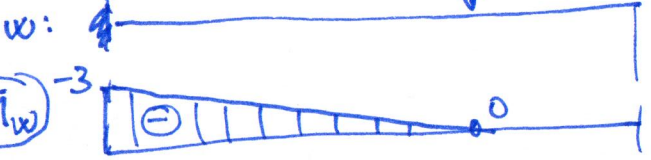
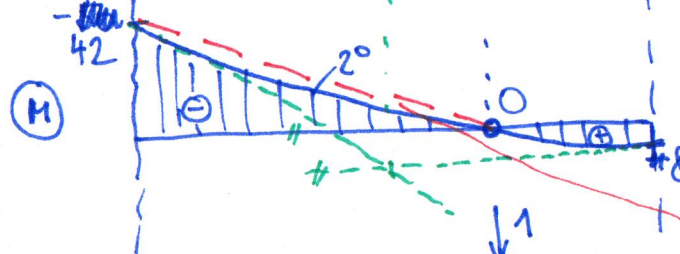
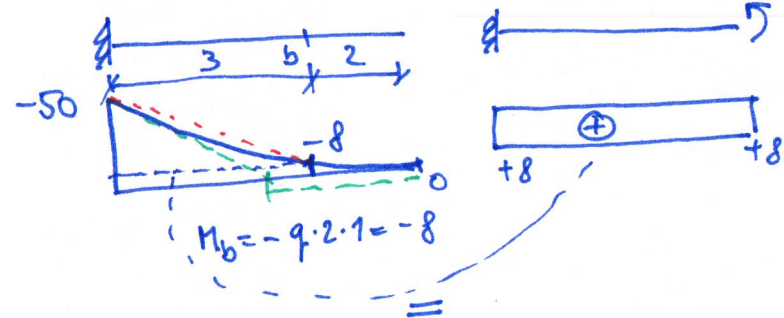
$w(x=3\text{m}) = ?$

$\varphi(x=3\text{m}) = ?$

$E = 210 \text{ GPa}$

$I = 2140 \text{ cm}^4 (I_{200})$

$M_b = M - (2 \cdot q) \cdot 1 = 8 - 8 = 0$



$\frac{1}{8} q l^2 = \frac{1}{8} \cdot 4 \cdot 3^2 = 4,5$

$$w(x=3) = \frac{1}{EI} \cdot \int M \bar{M}_w dx = \frac{1}{EI} \left[\frac{1}{2} \cdot \frac{42}{3} \cdot 3 \cdot \left(\frac{2}{3} \cdot 3 \right) - \frac{2}{3} \cdot 4,5 \cdot 3 \cdot \left(\frac{1}{2} \cdot 3 \right) \right] = \frac{112,5}{EI} = \frac{112,5 \cdot 10^3}{210 \cdot 10^9 \cdot 2140 \cdot 10^{-8}} = 0,025 \text{ m} = 25 \text{ mm}$$

$$\varphi(x=3) = \frac{1}{EI} \int M \bar{M}_\varphi dx = \frac{1}{EI} \left[+ \frac{1}{2} \cdot 42 \cdot 3 \cdot 1 - \frac{2}{3} \cdot 4,5 \cdot 3 \cdot 1 \right] = \frac{1}{EI} \cdot 54 = \frac{54 \cdot 10^3}{210 \cdot 10^9 \cdot 2140 \cdot 10^{-8}} = 0,012 \text{ rad}$$