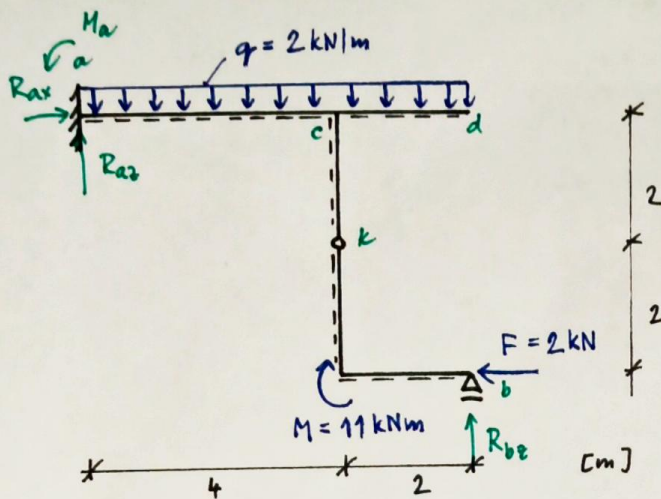
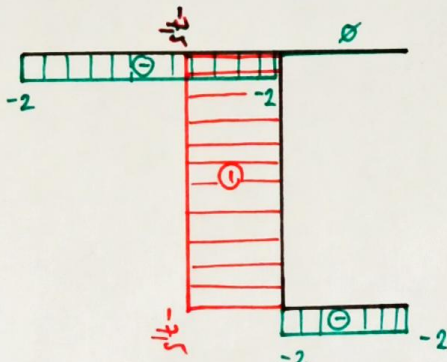
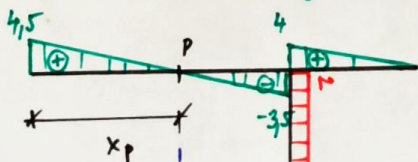




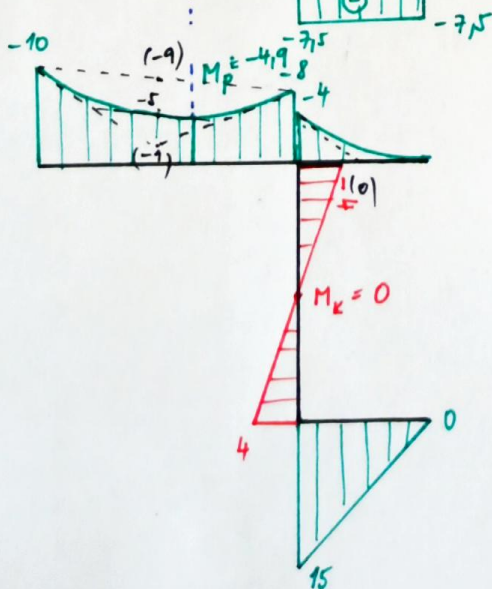
(N)



(V)



(M)



⊕

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

$$R_{ax} - F = 0$$

$$R_{ax} = F = 2 \text{ kN}$$

⊕

$$\sum M_{ik}^P = 0$$

$$R_{bz} \cdot 2 - F \cdot 2 - M = 0$$

$$R_{bz} = \frac{2 \cdot 2 + 11}{2} = 7.5 \text{ kN}$$

$$\oplus \uparrow \sum F_{iz} = 0:$$

$$R_{az} - q \cdot 6 + R_{bz} = 0$$

$$R_{az} = 2 \cdot 6 - 7.5 = 4.5 \text{ kN}$$

⊕

$$\sum M_{ia} = 0:$$

$$M_a - q \cdot 6 \cdot 3 - M - F \cdot 4 + R_{bz} \cdot 6 = 0$$

$$M_a = 2 \cdot 6 \cdot 3 + 11 + 2 \cdot 4 - 7.5 \cdot 6$$

$$M_a = 10 \text{ kNm}$$

$$K: \downarrow \sum M_{ik}^L = 0:$$

$$M_a - R_{az} \cdot 4 - R_{ax} \cdot 2 + q \cdot 6 \cdot 1 = 0$$

$$10 - 4.5 \cdot 4 - 2 \cdot 2 + 2 \cdot 6 \cdot 1 = 0 \quad \checkmark$$

$$V_P^L = 0: R_{az} - q \cdot x_P = 0$$

$$x_P = \frac{4.5}{2} = 2.25 \text{ m}$$

$$M_{ca} = -M_a + R_{az} \cdot 4 - q \cdot 4 \cdot 2 =$$

$$= -10 + 4.5 \cdot 4 - 2 \cdot 4 \cdot 2 = -8 \text{ kNm}$$

$$M_{cd} = -q \cdot 2 \cdot 1 = -2 \cdot 2 \cdot 1 = -4 \text{ kNm}$$

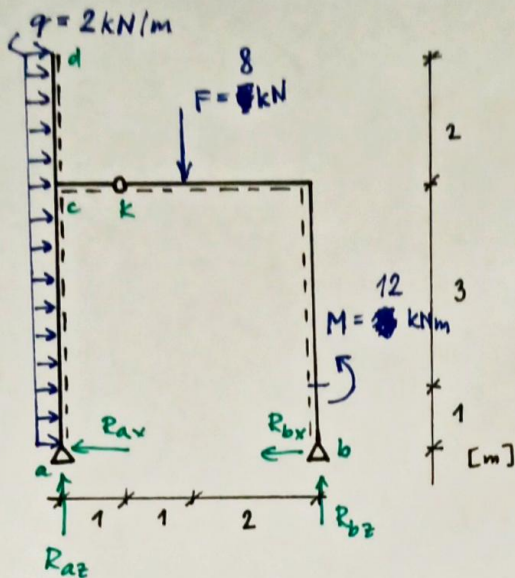
$$M_{ck} = -M_a + R_{az} \cdot 4 - q \cdot 4 \cdot 2 + q \cdot 2 \cdot 1 =$$

$$= -10 + 4.5 \cdot 4 - 2 \cdot 4 \cdot 2 + 2 \cdot 2 \cdot 1 = -4 \text{ kNm}$$

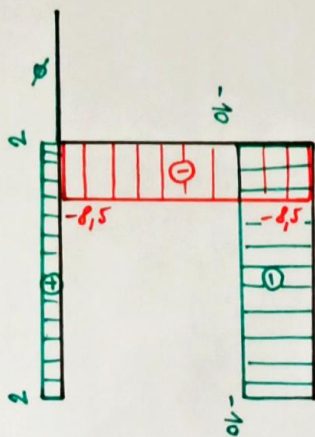
$$f = \frac{1}{8} \cdot q \cdot l^2 = \frac{1}{8} \cdot 2 \cdot 4^2 = 4$$

$$M_P^L = M_a + \int_a^P V dx =$$

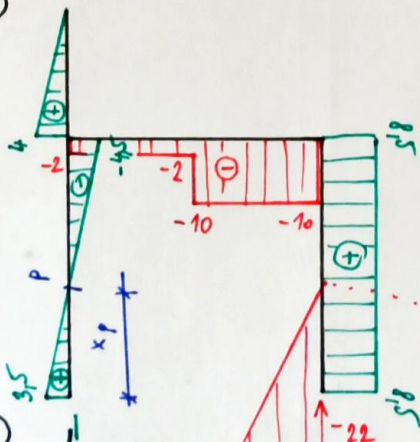
$$= -10 + \frac{1}{2} \cdot 4.5 \cdot 2.25 = -4.9375 \text{ kNm}$$



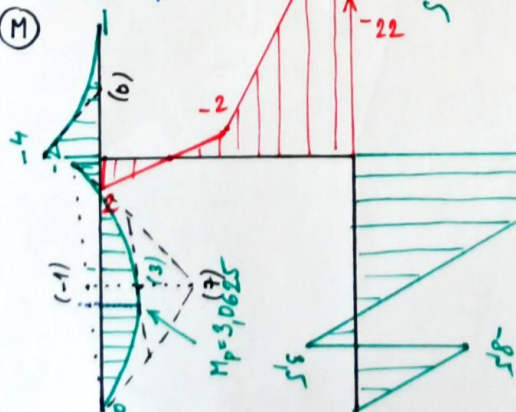
(N)



(V)



(M)



$$\oplus \sum M_{ia} = 0 :$$

$$-q \cdot 6 \cdot 3 - F \cdot 2 + M + R_{bz} \cdot 4 = 0$$

$$\underline{R_{bz} = \frac{2 \cdot 6 \cdot 3 + 8 \cdot 2 - 12}{4} = 10 \text{ kN}}$$

$$\oplus \sum M_{ik}^P = 0 :$$

$$R_{bz} \cdot 3 - R_{bx} \cdot 4 + M - F \cdot 1 = 0$$

$$\underline{R_{bx} = \frac{10 \cdot 3 + 12 - 8 \cdot 1}{4} = 8.5 \text{ kN}}$$

$$\oplus \sum M_{ib} = 0 :$$

$$-R_{az} \cdot 4 - q \cdot 6 \cdot 3 + F \cdot 2 + M = 0$$

$$\underline{R_{az} = \frac{-2 \cdot 6 \cdot 3 + 8 \cdot 2 + 12}{4} = -2 \text{ kN}}$$

$$\oplus \sum M_{ik}^L = 0 :$$

$$-R_{az} \cdot 1 - R_{ax} \cdot 4 + q \cdot 6 \cdot 1 = 0$$

$$\underline{R_{ax} = \frac{-(-2) \cdot 1 + 2 \cdot 6 \cdot 1}{4} = 3.5 \text{ kN}}$$

$$K: \sum F_{ix} = 0 :$$

$$q \cdot 6 - R_{ax} - R_{bx} = 0$$

$$2 \cdot 6 - 3.5 - 8.5 = 0 \quad \checkmark$$

$$\sum F_{iz} = 0 :$$

$$R_{az} - F + R_{bz} = 0$$

$$-2 - 8 + 10 = 0 \quad \checkmark$$

$$V_p^L = 0 : R_{ax} - q \cdot x_p = 0$$

$$\underline{x_p = \frac{R_{ax}}{q} = \frac{3.5}{2} = 1.75 \text{ m}}$$

$$M_{ca} = R_{ax} \cdot 4 - q \cdot 4 \cdot 2 = 3.5 \cdot 4 - 2 \cdot 4 \cdot 2 = -2 \text{ kNm}$$

$$M_{cd} = -q \cdot 2 \cdot 1 = -2 \cdot 2 \cdot 1 = -4 \text{ kNm}$$

$$M_{ak}^L = R_{az} \cdot 1 + R_{ax} \cdot 4 - q \cdot 6 \cdot 1 =$$

$$= (-2) \cdot 1 + 3.5 \cdot 4 - 2 \cdot 6 \cdot 1 = 0 \quad \checkmark$$

$$M_{ck} = R_{ax} \cdot 4 - q \cdot 6 \cdot 1 =$$

$$= 3.5 \cdot 4 - 2 \cdot 6 \cdot 1 = 2 \text{ kNm}$$

$$\underline{M_p = M_a + \int_a^P V dx = 0 + \frac{1}{2} \cdot 3.5 \cdot 1.75 = 3.0625 \text{ kNm}}$$