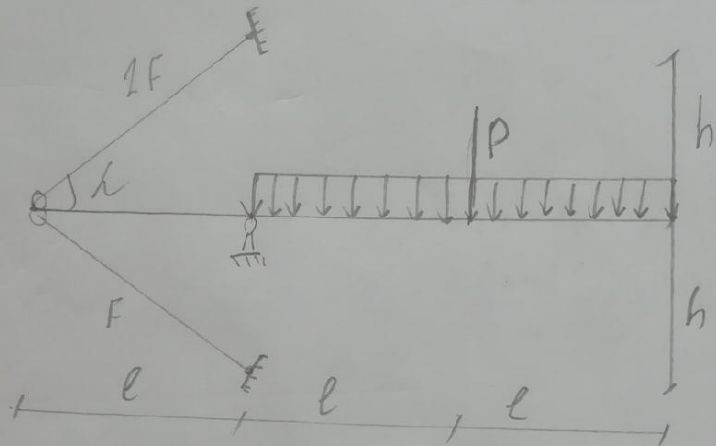
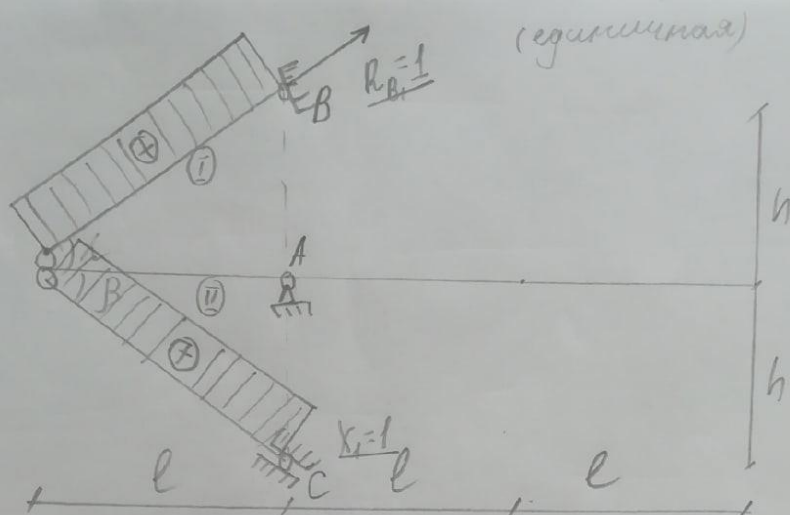


Первый пример

Dams:

$$h = 3 \text{ m}$$
$$l = 2m$$
$$P = 40 \text{ kH}$$
$$Q = 30 \text{ kHm}$$
$$[\sigma] = 160 \text{ MPa}$$


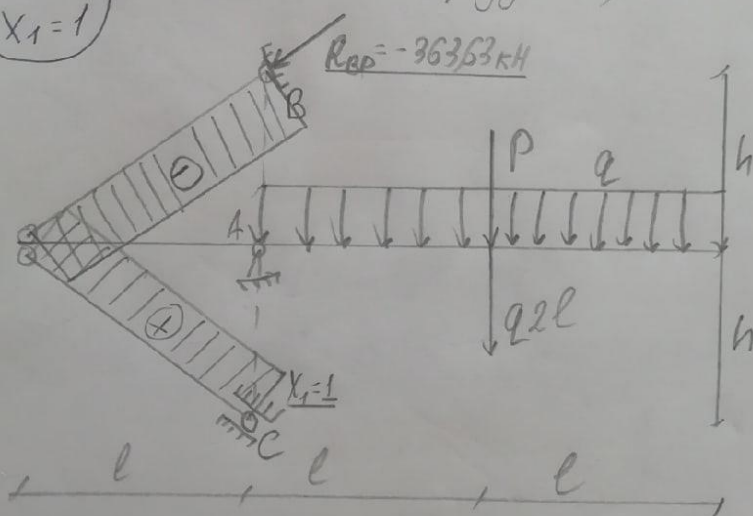


$$l_I = \sqrt{l^2 + h^2} = \sqrt{3^2 + 2^2} = \sqrt{13}; \quad l_{II} = l_I = \sqrt{13} \Rightarrow \sin \alpha = \frac{h}{l_I} = \frac{2}{\sqrt{13}} = 0,44$$

$$\sum m_A = -R_B \cdot l \sin \alpha + X_1 \cdot l \sin \alpha = 0 \Rightarrow R_{B1} = \frac{X_1 \cdot l \sin \alpha}{l \sin \alpha} = \textcircled{1}$$

$$\begin{pmatrix} N_1 = 1 \\ X_1 = 1 \end{pmatrix}$$

(прызобав)



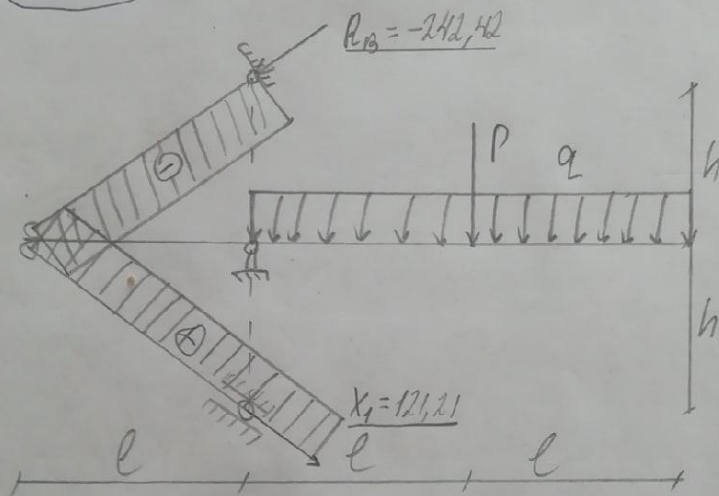
$$\begin{aligned} \sum m_A &= -R_{BP} \cdot l \sin \alpha - q \cdot 2l \cdot l - P \cdot l = 0; \quad R_{BP} = \frac{-q \cdot 2l \cdot l - P \cdot l}{l \sin \alpha} = \\ &= \frac{-30 \cdot 2 \cdot 2 \cdot 2 - 40 \cdot 2}{2 \cdot 0,44} = -363,63 \text{ кН} \end{aligned}$$

$$\delta_{11} = \sum_{i=1}^2 \frac{\bar{N}_{1i} \cdot \bar{N}_{1i} \cdot l_i}{EF_i} = \frac{1 \cdot 1 \cdot \sqrt{13}}{E2F} + \frac{1 \cdot 1 \cdot \sqrt{13}}{EF} = \frac{3\sqrt{13}}{2EF}$$

$$\Delta_{1P} = \sum_{i=1}^2 \frac{\bar{N}_{1i} \cdot \bar{N}_{Pi} \cdot l_i}{EF_i} = \frac{1(-363,63)\sqrt{13}}{2EF} + 0 = \frac{-363,63\sqrt{13}}{2EF}$$

$$\frac{3\sqrt{13}}{2EF} X_1 - \frac{363,63\sqrt{13}}{2EF} = 0 \Rightarrow 3X_1 - 363,63 = 0 \quad | :3$$

$$X_1 = 121,21$$

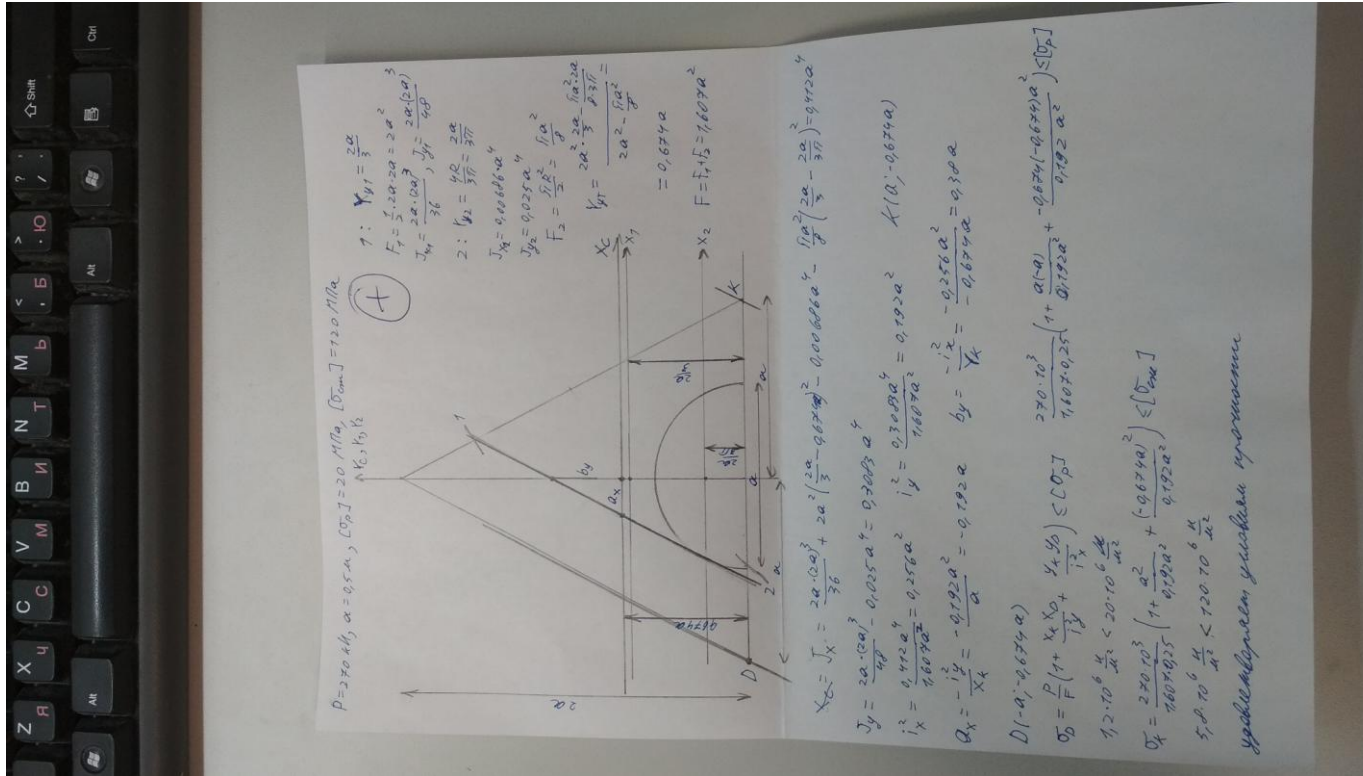


$$-R_B l \sin \alpha - q 2l \cdot l - Pl + X_1 l \sin \alpha = 0$$

$$R_B = \frac{-q 2l \cdot l - Pl + X_1 l \sin \alpha}{l \sin \alpha} = \frac{-30 \cdot 2 \cdot 2 \cdot 2 - 40 \cdot 2 + 121,21 \cdot 2 \cdot 0,44}{1 \cdot 0,44} \quad \textcircled{E}$$

$$\textcircled{E} \underline{-242,42 \text{ kN}}$$

Второй пример



Третий пример