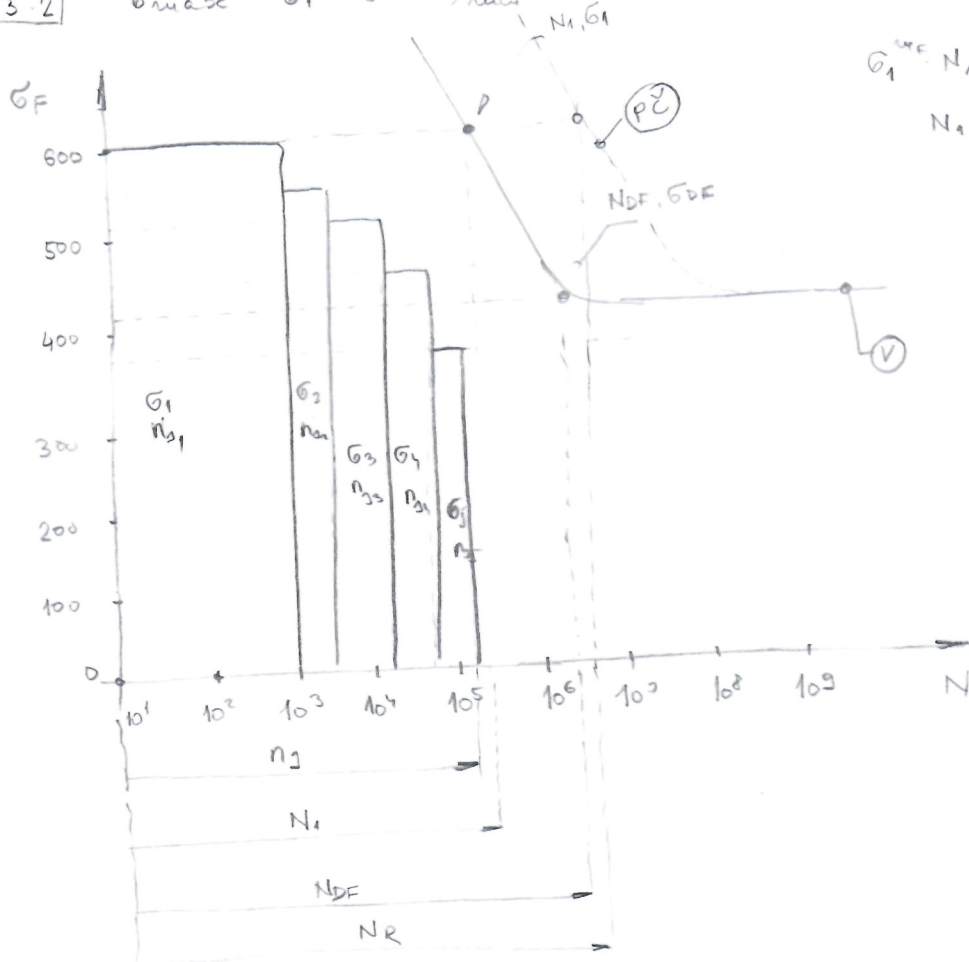


$$\sigma_{DF} = 420$$

$$N_{DF} = 3 \cdot 10^6$$

3.2

$$\sigma_{max} = \sigma_1 = 600 \text{ N/mm}^2$$



$$\sigma_1^{w_F} \cdot N_1 = \sigma_{DF}^{w_F} \cdot N_{DF} \Rightarrow$$

$$N_1 = \left(\frac{\sigma_{DF}}{\sigma_1} \right)^{w_F} \cdot N_{DF} =$$

$$= \left(\frac{420}{600} \right)^7 \cdot 3 \cdot 10^6 = 247063$$

$$N_1 = \underline{\underline{2,47 \cdot 10^5}}$$

$$n_2 = \sum_{i=1}^4 n_i = n_{21} + n_{22} + n_{23} + n_{24} + n_{25}$$

$$n_2 = 178000 = 1,78 \cdot 10^5$$

$$N_R = \frac{\sigma \cdot N_1}{\sum_{i=1}^4 \left(\frac{\sigma_i}{\sigma_1} \right)^{w_F} \frac{n_{2i}}{n_2}} = \frac{\sigma \cdot N_1}{\sum_{i=1}^4 \left(\frac{\sigma_i}{\sigma_1} \right)^{w_F} \frac{n_{2i}}{n_2}}$$

($\sigma_5 < \sigma_{DF}$!!! не нужно в расчете)

$$N_R = \frac{\sigma \cdot N_1}{\left(\frac{\sigma_1}{\sigma_1} \right)^{w_F} \frac{n_{21}}{n_2} + \left(\frac{\sigma_2}{\sigma_1} \right)^{w_F} \frac{n_{22}}{n_2} + \left(\frac{\sigma_3}{\sigma_1} \right)^{w_F} \frac{n_{23}}{n_2} + \left(\frac{\sigma_4}{\sigma_1} \right)^{w_F} \frac{n_{24}}{n_2}}$$

$$N_R = \frac{1 \cdot 2,47 \cdot 10^5}{\left(\frac{600}{600} \right)^7 \cdot \frac{1000}{178000} + \left(\frac{550}{600} \right)^7 \cdot \frac{3000}{178000} + \left(\frac{520}{600} \right)^7 \cdot \frac{14000}{178000} + \left(\frac{450}{600} \right)^7 \cdot \frac{40000}{178000}} = \underline{\underline{3,53 \cdot 10^6}}$$

$$b) S_N = \frac{N}{n} = \frac{N_R}{n_2} = \frac{3,53 \cdot 10^6}{178000} = 19,83$$

$$S_{\sigma} = S_N^{\frac{1}{w_F}} = 19,83^{\frac{1}{7}} = 1,53$$

