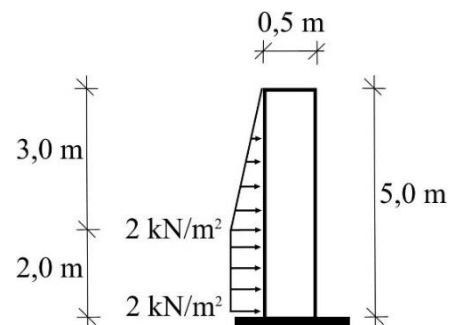


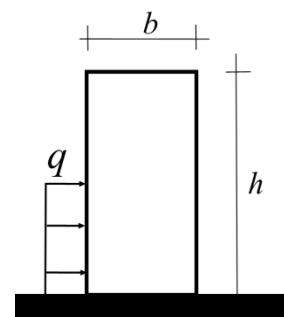
Safety factors, turnover

we do not give bonus points for this set of exercises

- The figure shows a 25 m long gravity dam. Its density is 1800 kg/m^3 and it is loaded by a distributed load according to the figure. Check if the dam is safe against turnover! (No safety factors here)



- The figure shows a $b=0.7 \text{ m}$ wide and $h=4.0 \text{ m}$ high (and very long) homogenous gravity dam. Its density is 1500 kg/m^3 and it is loaded on the bottom half (until the height $h/2$) by the distributed load q according to the figure. Determine the maximal value of q , if the dam is just safe against turnover! Check a 1 meter long part of the dam!



- The figure shows a reinforced concrete dam. A trapezoid shaped earth pressure is acting on it according to the figure. Check if the dam is safe against turnover!

Check if the dam is safe against turnover!

Data: $a=0,8 \text{ m}$, $b=1,5 \text{ m}$, $h=3,5 \text{ m}$, $v=0,6 \text{ m}$, $p_{k,\min}=0,8 \text{ kN/m}^2$, $p_{k,\max}=7 \text{ kN/m}^2$. The density of the reinforced concrete is 24 kN/m^3 . The safety factor of the dead load is: $\gamma_G=0,9$ or $1,35$. The safety factor of the earth pressure is $\gamma=1,4$.

Remark: We ignore the supporting effect of the soil on the right. The centre of rotation is point "D". Consider a one meter long part of the dam!

