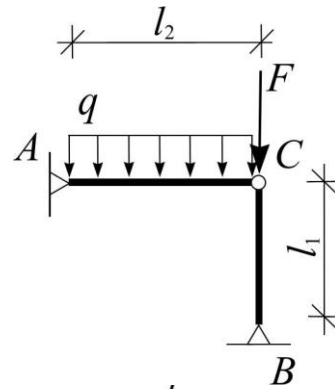
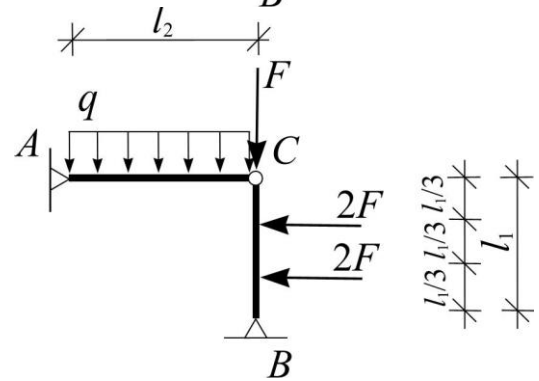


Superposition, loads, turnover

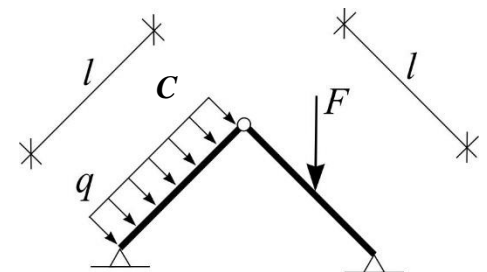
1. Determine the support reactions (directions and magnitudes!) of the three-hinged structure and the connection force in hinge "C" (directions and magnitudes!) if $F=15$ kN, $q=6$ kN/m, $l_1=2,5$ m and $l_2=3,0$ m. Draw a result figure showing the structure itself, the loads and the reaction forces (directions and magnitudes!) on it!



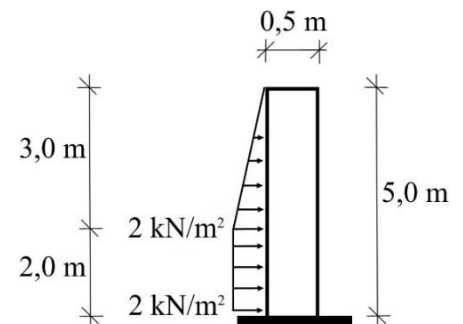
2. Determine the support reactions (directions and magnitudes!) of the three-hinged structure and the connection force in hinge "C" (directions and magnitudes!) if $F=15$ kN, $q=6$ kN/m, $l_1=2,5$ m and $l_2=3,0$ m. **For the solution use the results of the previous problem (use the principle of linear superposition!)** Draw a result figure showing the structure itself, the loads and the reaction forces (directions and magnitudes!) on it!



3. Determine the support reactions (directions and magnitudes!) of the three-hinged structure and the connection force in hinge "C" (directions and magnitudes!) if $F=25$ kN (acting in the middle of the bar), $q=3$ kN/skew meter!, $l=3$ m and the slope of the bars are 45° (i.e. in joint „C“ the angle is 90°). Draw a result figure showing the structure itself, the loads and the reaction forces (directions and magnitudes!) on it!



4. The figure shows a 25 m long gravity dam. Its density is 1800 kg/m³ and it is loaded by a distributed load according to the figure. Check if the dam is safe against turnover!



5. The figure shows a $b=0.7$ m wide and $h=4.0$ m high (and very long) homogenous gravity dam. Its density is 1500 kg/m³ 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!

