Exercise 5: Bending
22.11.2024 - 25.11.2024

Question 1 . . . .

Determine if the following structures are statically determinate! Calculate the deflection and the reaction forces and moments at the supports! Sketch the shear force, moment and deflection.
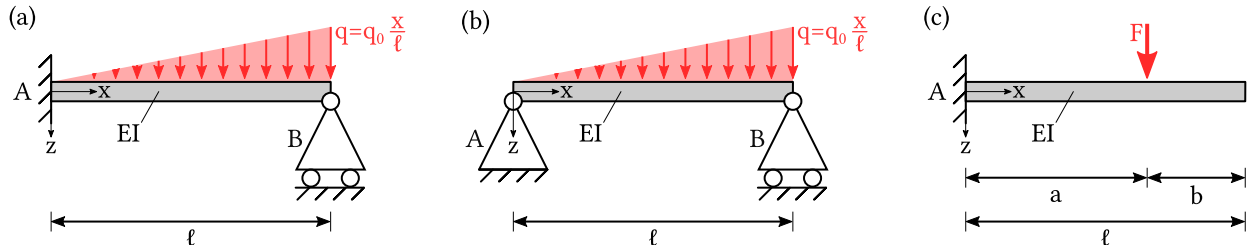
Question 2 . . . .

A beam with cylindrical cross-section (radius r) is supported by two bearings, see below. A moment M is applied at one end. The area moment of inertia for this cross-section is $I = \pi r^4/4$. Calculate the maximum deflection! Where does it occur? Sketch the shear force, moment and deflection.
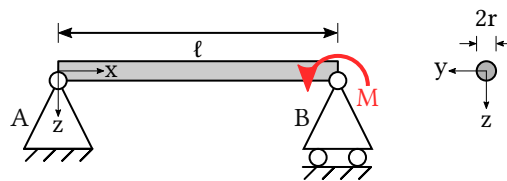
Question 3 . . . .

The beam shown below has the bending stiffness EI and is subjected to a line load q_0. Calculate the reaction forces and the deflection of the beam! Sketch the shear force, moment and deflection.
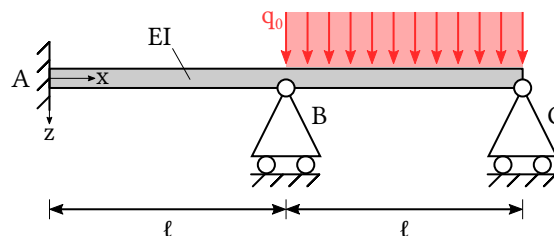
Hint: If a system is hyperstatic it might be helpful to start from the Euler-Bernoulli equation before trying to determine the reaction forces.