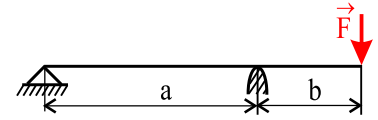

Problem 616

Determine the displacement and the slope at the free end of the beam with the circular cross section of diameter d using differential equation of the deflection curve. Check the values of displacement and slope using integral approach. Gravitational forces can be neglected.

Input values:

$$\begin{aligned} a &= 1 \text{ m}, & \varnothing d &= 30 \text{ mm}, \\ b &= 2 \text{ m}, & F &= 1 \text{ kN}, \\ E &= 2 \cdot 10^5 \text{ MPa}, & \sigma_K &= 300 \text{ MPa} \end{aligned}$$



flexion

deflection curve

supported beam