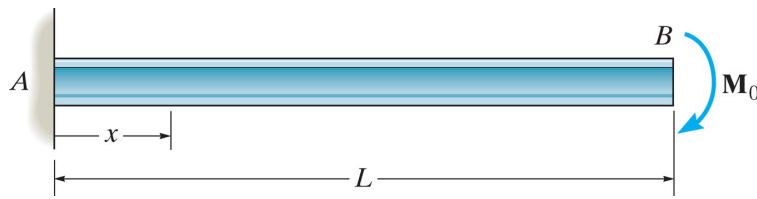


Name:

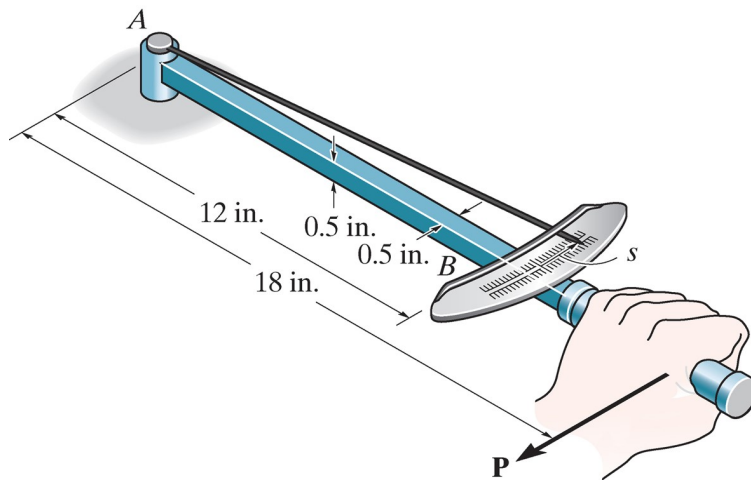
Homework 9

Due 19 November 2021

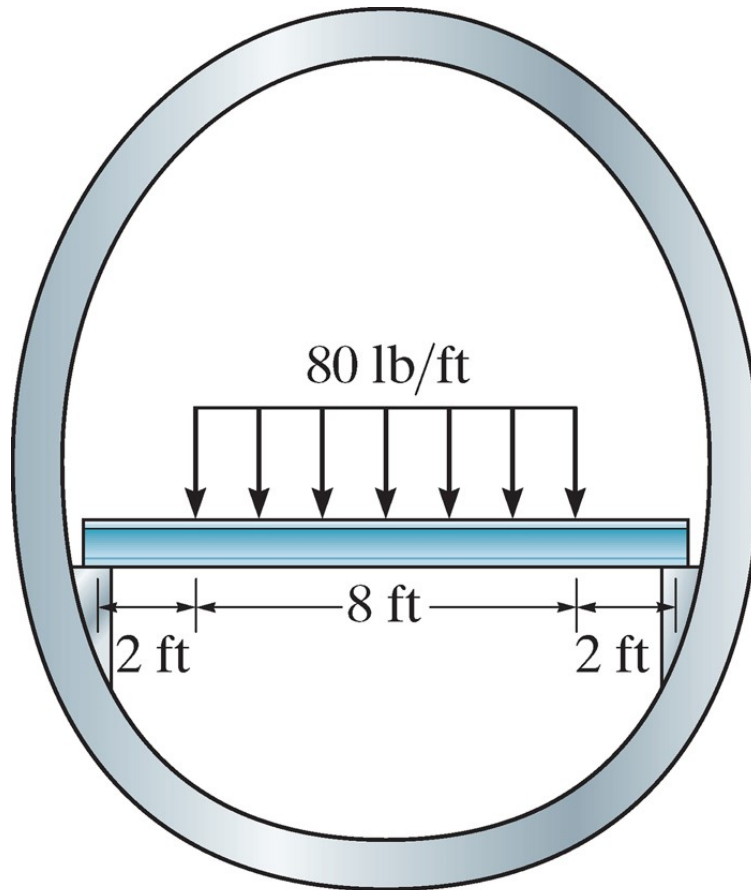
- Find the deflection (as a function of x) for a cantilevered beam with an applied end moment. Assume EI is constant and express answer in terms of applied moment and EI .



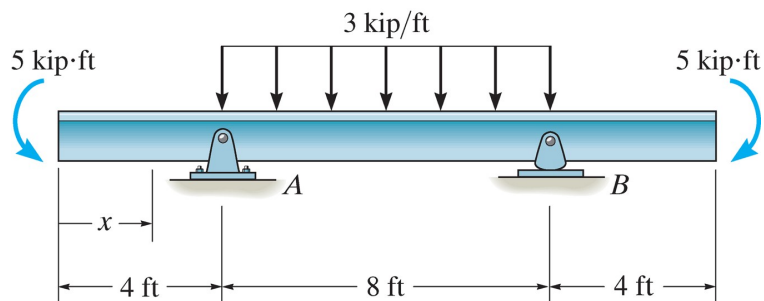
- A torque wrench is used to tighten the nut on a bolt. If the dial indicates that a torque of $75 \text{ ft} \cdot \text{lb}$ when the bolt is fully tightened, find the force P on the handle and the distance that the needle moves along the scale. Assume that only the section AB bends and the cross section is a solid 0.5 in square with $E = 29 \text{ Msi}$



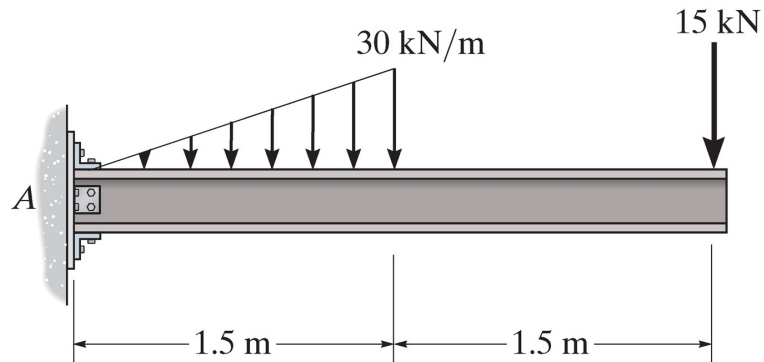
3. The floor beam of an airplane is subjected to the loading shown. Assuming the fuselage exerts only vertical reactions on the ends of the beam, determine the maximum deflection of the beam in terms of some constant flexural rigidity, EI .



4. Find the deflection as a function of x for the beam shown in terms of some constant EI .



5. Find the deflection as a function of x for the beam shown in terms of some constant EI .



6. The rod is pinned at the end A and attached to a torsional spring with stiffness k (with k expressed in torque per radian of rotation). For a perpendicular force, P , as shown find the displacement of the force in terms of some constant EI .

