1. Determine the moment M_0 in terms of the load P and dimension a so that the deflection at the center of the beam is zero. EI is constant.
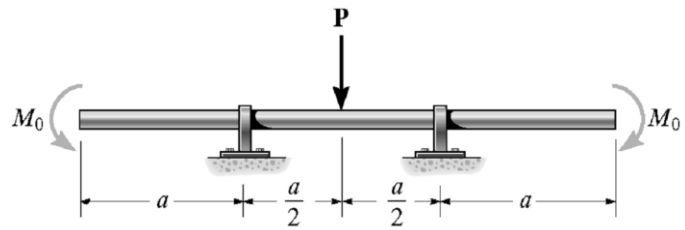
2. The maximum deflection of the simply supported beam shown is required not to exceed 1/360 of the span length. Select the lightest-weight steel I-beam from appendix. Assume A a pin and B a roller support. E = 200 GPa.
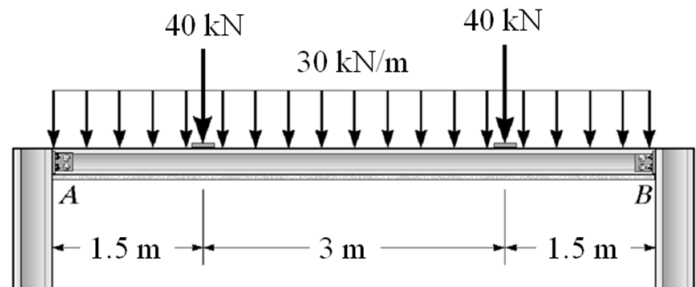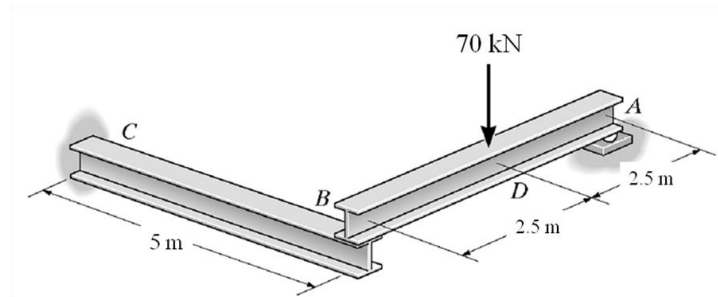
3. The assembly consists of a cantilevered beam *CB* and a simply supported beam *AB*. Determine the displacement at the center *D* of beam *AB*. *EI* is constant.

4. Determine the vertical deflection and slope at the end *A* of the bracket. Assume that the bracket is fixed supported at its base, and neglect the axial deformation of segment *AB*. *EI* is constant.