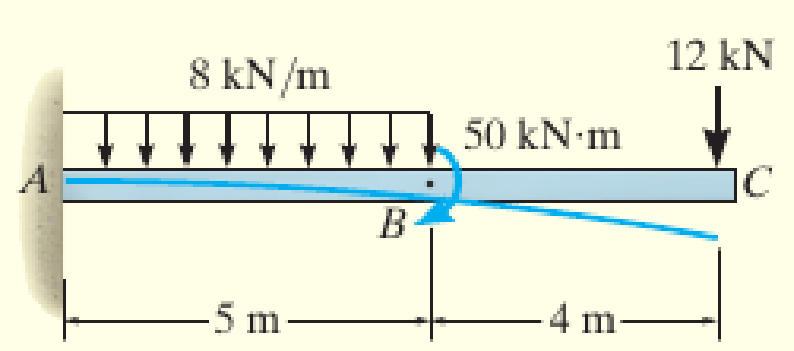
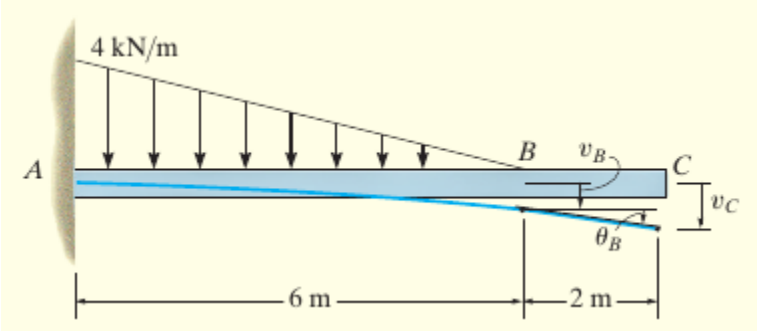
Design exercise 1

Determine the equation of the elastic curve for the cantilevered beam shown given *EI* = constant using singularity functions



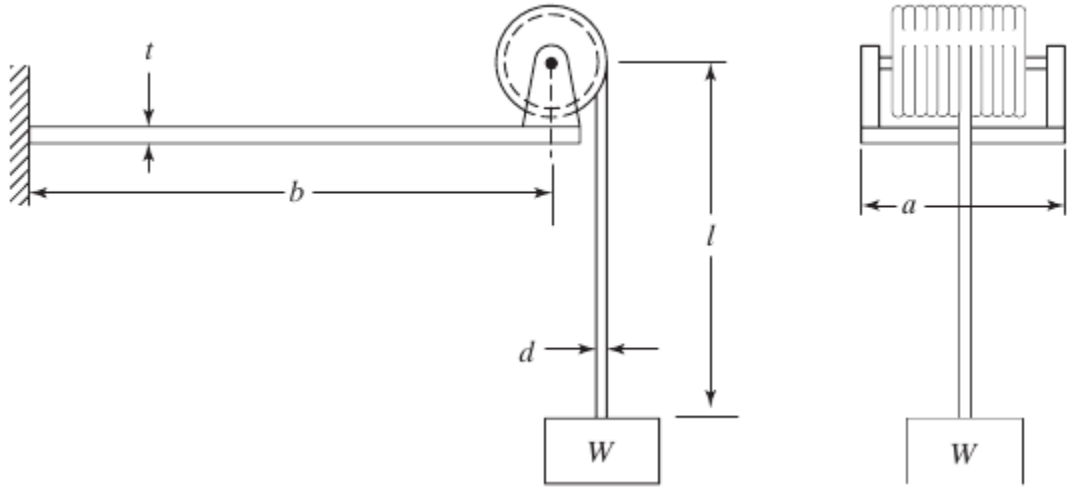
Design exercise 2

Determine the displacement at end *C* of the cantilever beam shown given *EI* = constant using superposition



Design exercise 3

A hoisting drum, carrying a steel wire rope, is mounted at the end of a cantilever beam as shown. Determine the equivalent spring constant of the system when the suspended length of the wire rope is L. Assume that the net cross-sectional diameter of the wire rope is d and the Young's modulus of the beam and the wire rope is E



Announcement

You should be able to apply the theory to project 1 to analyse the beam deformation

Design analysis

How would you analyse the spring rates for the following chair design?