

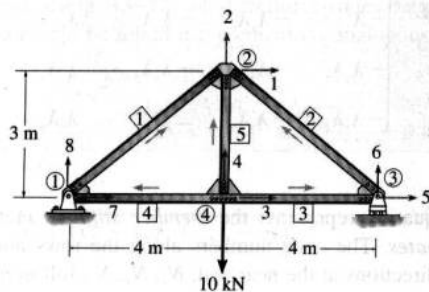
560.320
 Steel Structures
 MASTAN in-class problems

**YOU MUST USE CONSISTENT UNITS
 FOR GEOMETRY AND FOR MATERIAL!**

Common units in SI: N and mm, kN and m
 Common units in English: Kips and in.

Hibbeler, 5th Ed., Problem 13-7

13-7. Determine the vertical displacement at joint ④ and the force in member ④. Take $A = 0.0015 \text{ m}^2$ and $E = 200 \text{ GPa}$.

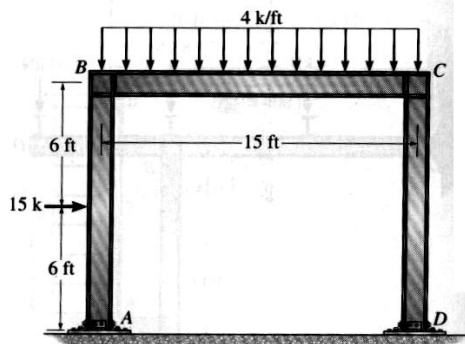


$200 \text{ GPa} = 200 \times 10^9 \text{ N/m}^2 = 200 \times 10^6 \text{ kN/m}^2$

Is the truss stiff or flexible? How would you compare this? why would you care?
 What changes if node 3 is pinned instead of a roller?

Hibbeler, 5th Ed., Problem 10-22

***10-22.** Determine the moments at A , B , C , and D then draw the moment diagram. The members are fixed connected at the supports and joints. EI is constant.



What happens to the deflected shape and the moment diagram if EI of the beam is much bigger than EI of the columns? - if EI of the beam is much smaller? Why do you care?

Solve these two problems in class.

Show me your solution (by printing it out or showing me on your screen) to verify your participation (you may work in groups.)