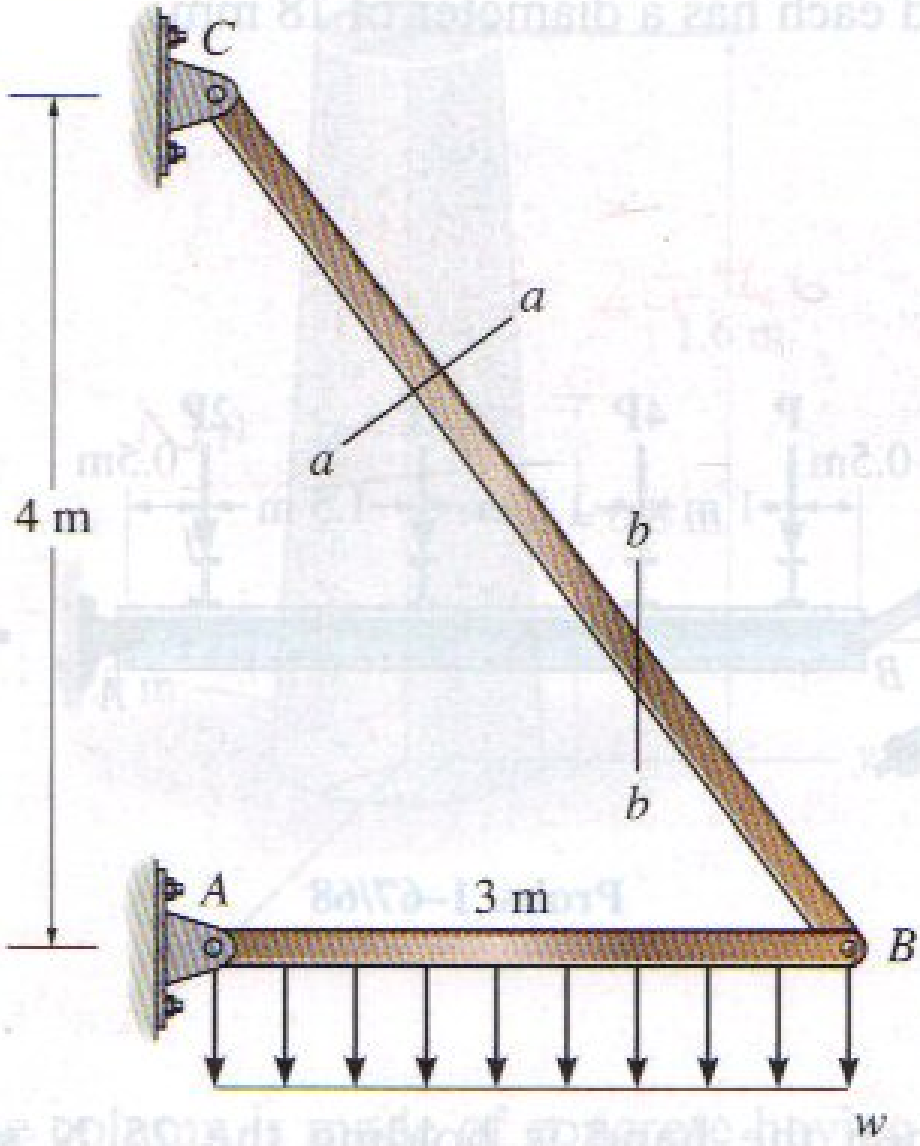
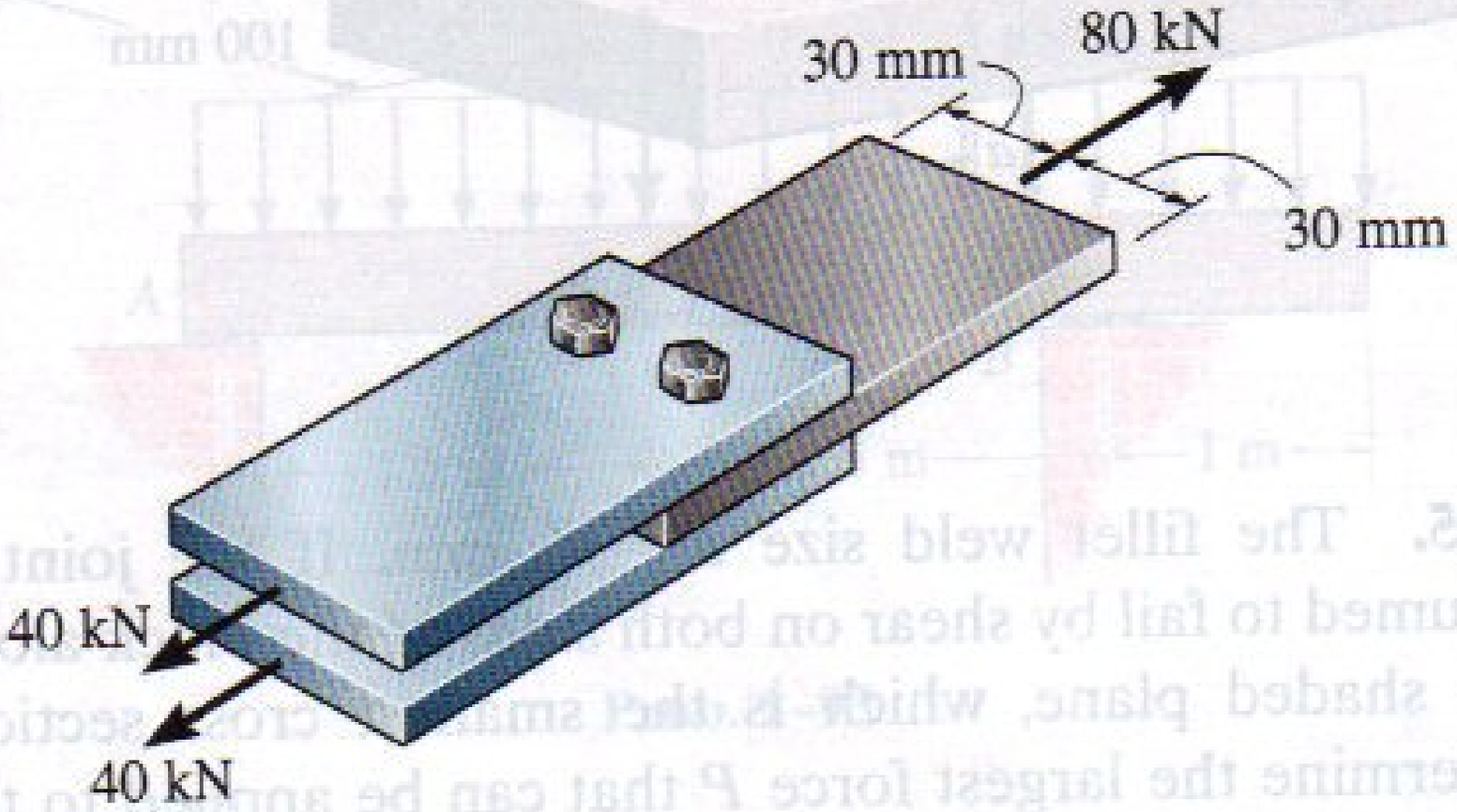
1-65. The two-member frame is subjected to the distributed loading shown. Determine the intensity w of the largest uniform loading that can be applied to the frame without causing either the average normal stress or the average shear stress at section b–b to exceed $\sigma = 15$ MPa and $\tau = 16$ MPa, respectively. Member CB has a square cross section of 35 mm on each side.



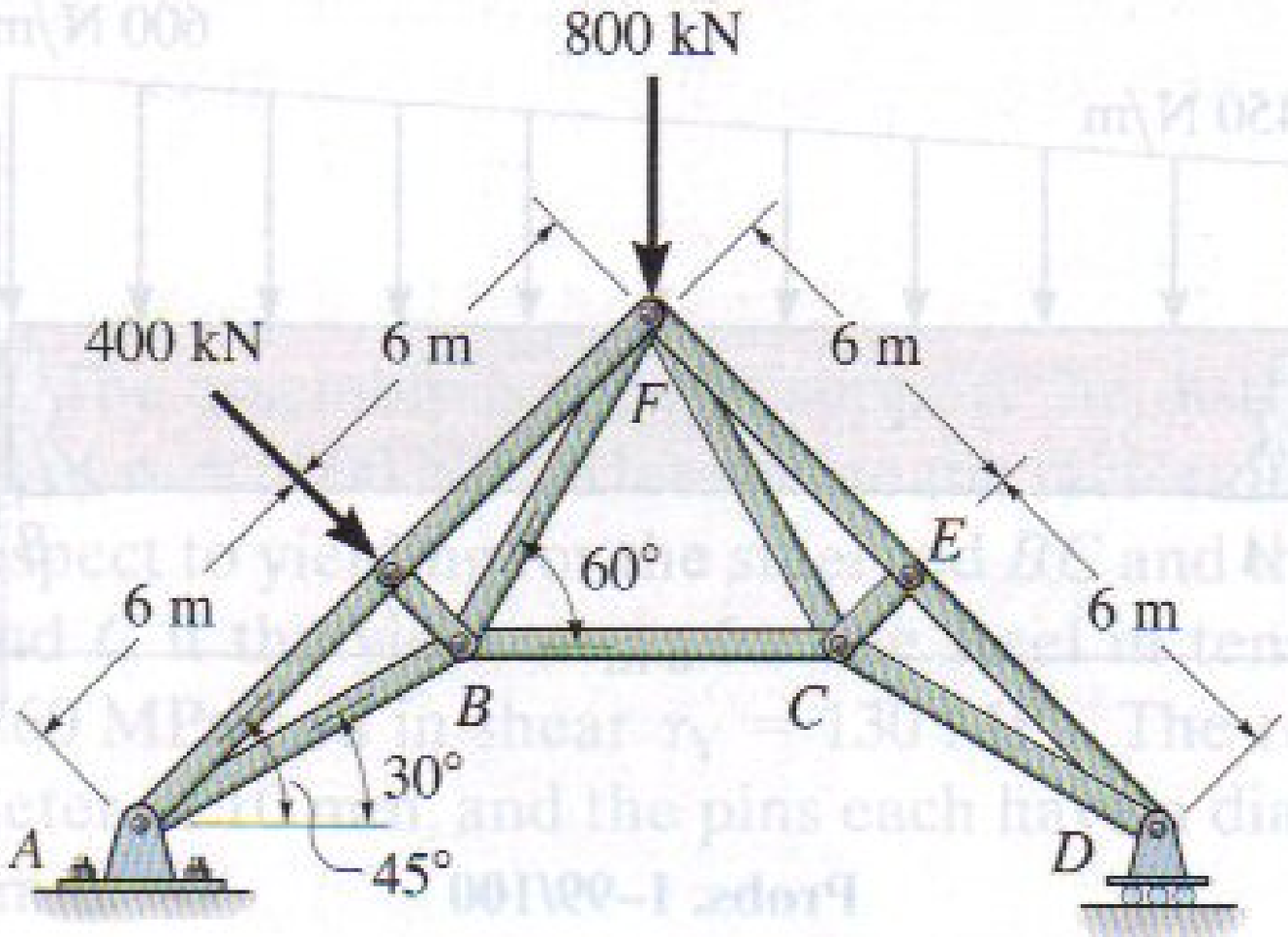
Probs. 1–64/65

1-82. The joint is fastened together using two bolts. Determine the required diameter of the bolts if the allowable shear stress for the bolts is $\tau_{allow} = 110$ MPa. Assume each bolt supports an equal portion of the load.



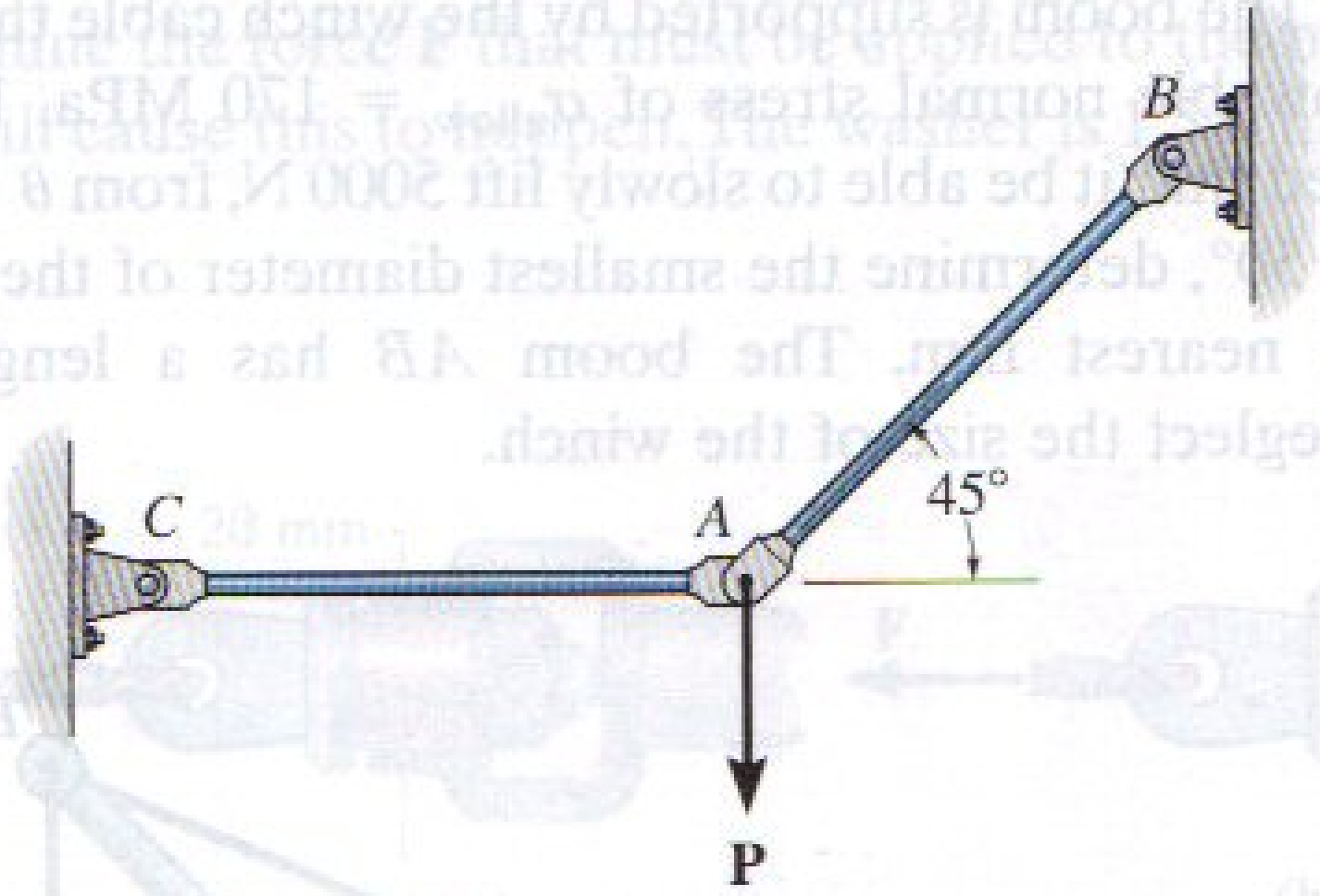
Prob. 1–82

*1-92. The truss is used to support the loading shown. Determine the required cross-sectional area of member BC if the allowable normal stress is $\sigma_{allow} = 170$ MPa.



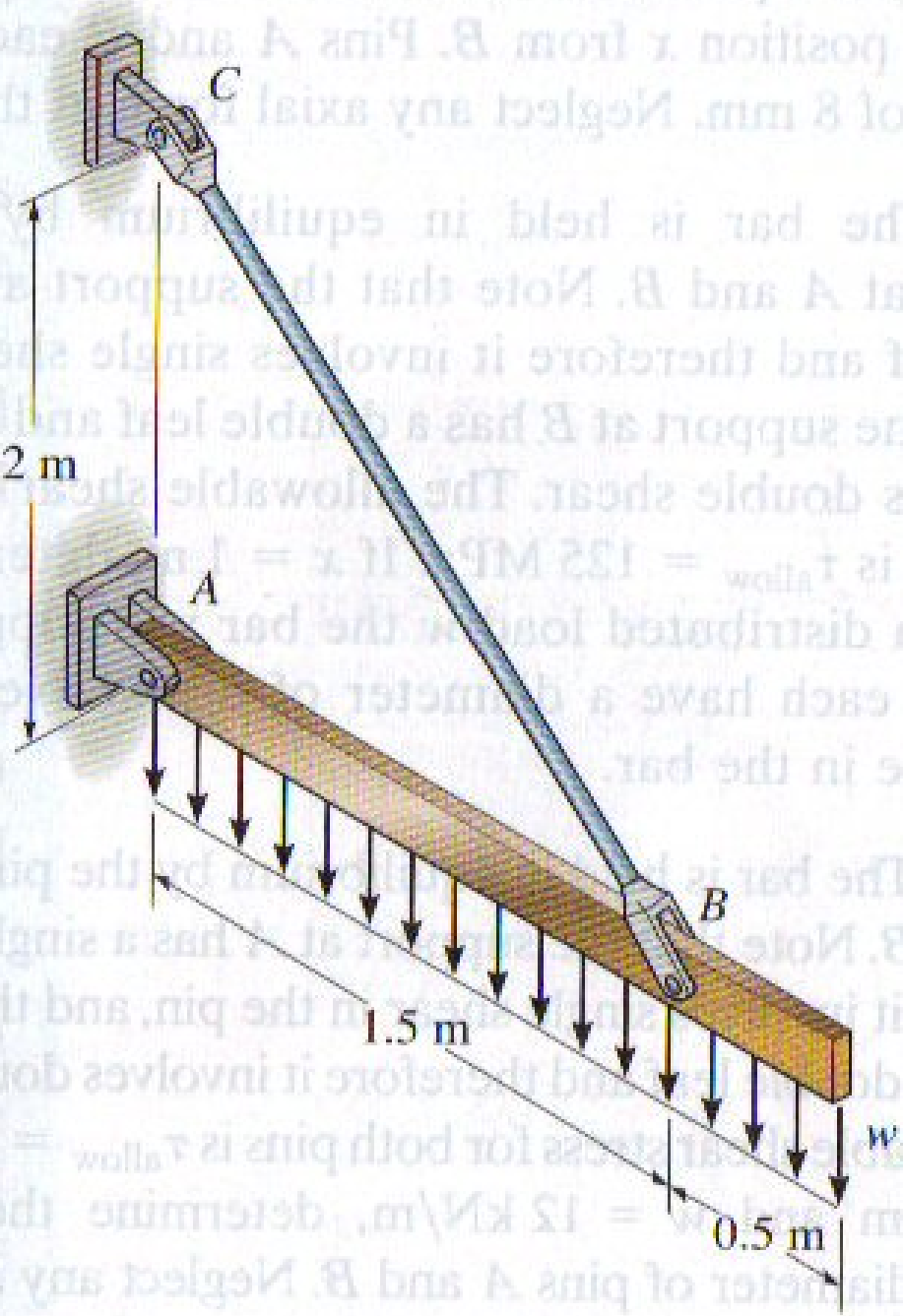
Prob. 1–92

1-98. The two aluminum rods AB and AC have diameters of 10 mm and 8 mm, respectively. Determine the largest vertical force **P** that can be supported. The allowable tensile stress for the aluminum is $\sigma_{\text{allow}} = 150$ MPa.



Prob. 1–98

***1-104.** If the allowable shear stress for each of the 6-mm-diameter steel pins at A, B, and C is $\tau_{allow} = 90$ MPa, and the allowable normal stress for the 10-mm-diameter rod is $\sigma_{allow} = 150$ MPa, determine the largest intensity w of the uniform distributed load that can be suspended from the beam.



Probs. 1–103/104