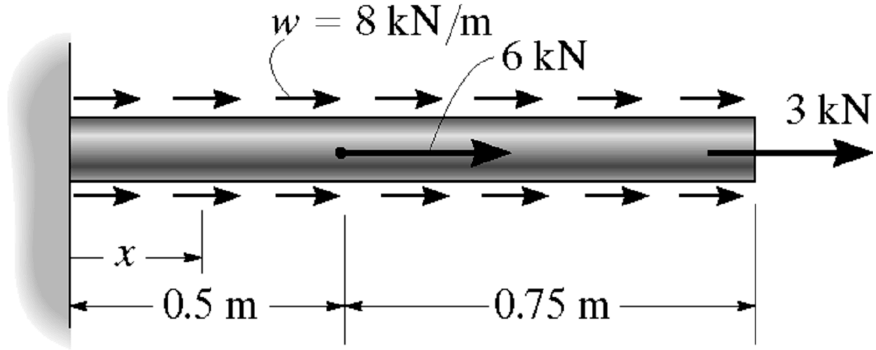
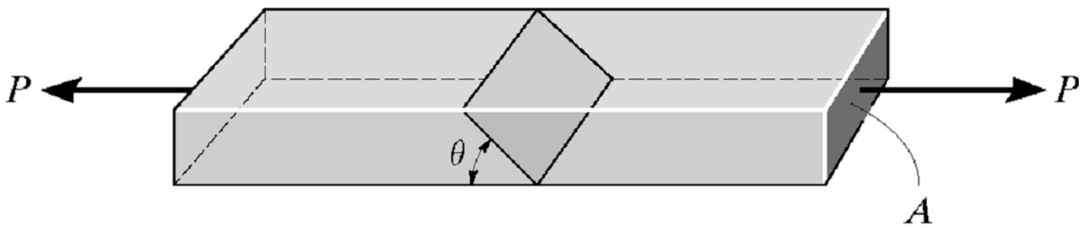
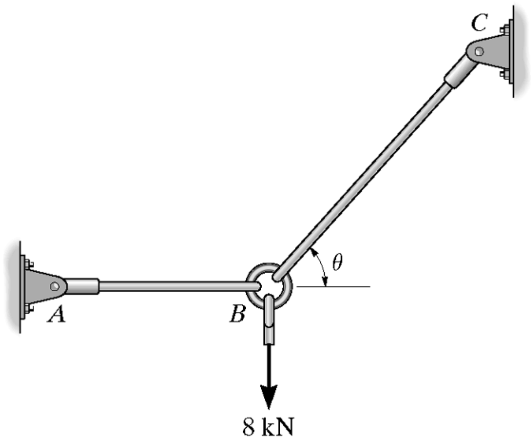
1. The bar has a cross-sectional area of 400 mm^2. If it is subjected to a uniform axial distributed loading along its length and to two concentrated loads as shown, determine the average normal stress in the bar as a function of x.



2. The bar has a cross-sectional area A and is subjected to the axial load P. Determine the average normal and average shear stresses acting over the shaded section, which is oriented at θ from the horizontal. Plot the variation of these stresses as a function of θ ($0 \le \theta \le 90^0$).



3. Rods *AB* and *BC* have diameters of 4 mm and 6mm, respectively. If the vertical load of 8 kN is applied to the ring at *B*, determine the angle θ of rod *BC* so that the average normal stress in each rod is equivalent. What is this stress?



4. The two-member frame is subjected to the distributed loading shown. Determine the average normal stress and average shear stress acting at sections *a*-*a* and *b*-*b*. Member *CB* has a square cross section of 35 mm on each side. Take w = 8 kN/m.