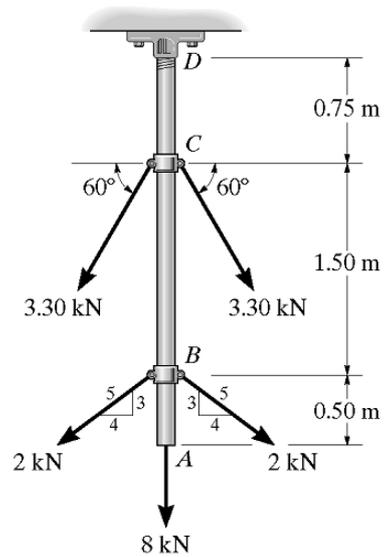1. The steel rod is subjected to the loading shown. If the cross-sectional area of the rod is 60 mm^2, determine the displacement of B and A. Neglect both the weight of the rod and the size of the couplings at B, C and D. E_{st} = 210 GPa.

2. The assembly consists of three titanium rods and a rigid bar AC. The cross-sectional area of each rod is given in the figure. If a vertical force P = 20 kN is applied to the ring F, determine the vertical displacement of point F. Eti = 350 GPa.
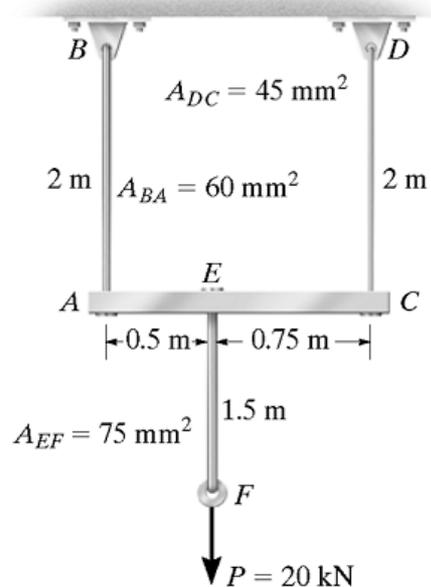
3. The post has a diameter of 60 mm and is subjected to the load of 20 kN. The soil provides a frictional resistance that is distributed along its length and varies linearly from w = 0 at y = 0 to w = 3 kN/m at y = 2m, determine the force F at its bottom needed for equilibrium. Also, what is the displacement of the top of the post with respect to its bottom? E = 13.1 GPa. Neglect the weight of the post.
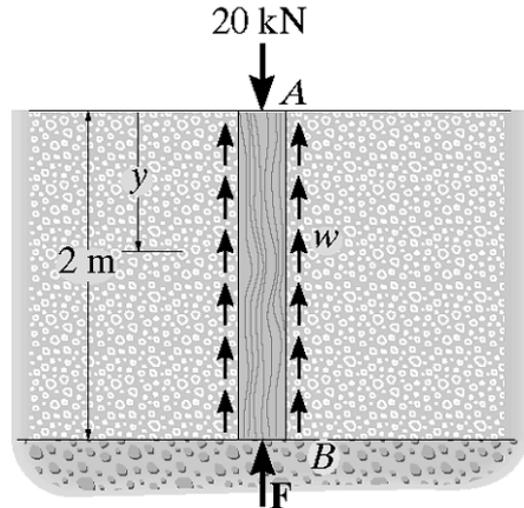
4. The rod has a slight taper and length L. It is suspended from the ceiling and supports a load P at its end. Find the displacement of its end due to this load. Neglect the weight of the material. The modulus of elasticity is E.