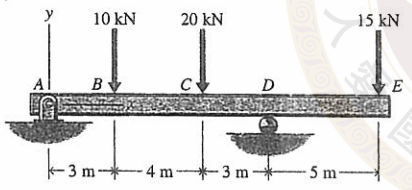
1. Draw the shear and moment diagrams for the beam shown in **Fig. 1**. (30%)

2. The stresses shown in **Fig. 2** act at a point on the free surface of a stressed body. Use Mohr's circle to determine the normal and shear stresses at this point on the inclined plane *AB* shown in the figure (30%)

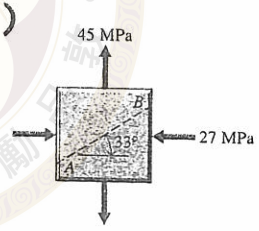
3. Find the forces in members *DE*, *DJ*, and *JK* of the truss of **Fig. 3**. (20%)

4. A 100×300-mm timber having a modulus of elasticity of 8 GPa is loaded and supported as shown in **Fig. 4**. Determine
   (a) The deflection at the 7-kN load. (10%)
   (b) The deflection at the free end of the beam. (10%)

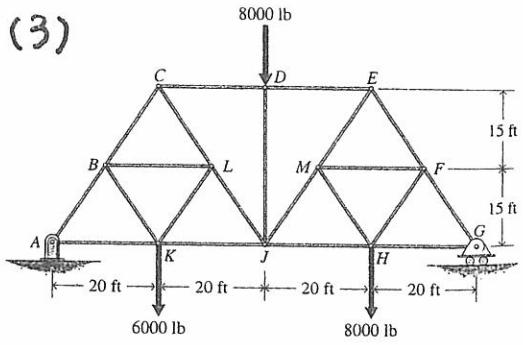
(1)



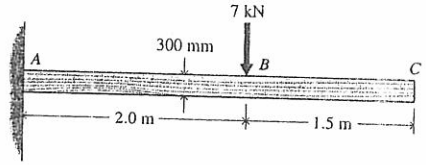
(2)



(3)



(4)



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