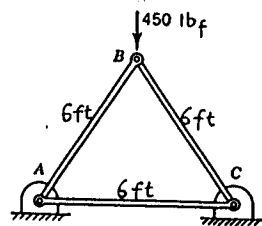1. A truss is loaded at B and supported at A and C.
   Find the horizontal supporting force acting on the truss at C.
   Note : A (cross section area of each member) = 4 in^2
   E (Modulus of Elasticity) = 10×10^6 psi

2. (a) Define plane stress and plane strain stress states.

   (b) In what way can the stress state affect the ductile / brittle behavior of a material. Explain by Mohr's circle if possible.

3. A 45° strain rosette consists of three electrical - resistance strain gages arranged as shown in the right figure. Gages A, B, and C measure the normal strains ϵ_a, ϵ_b and ϵ_c in the directions of lines Oa, Ob, and Oc, respectively. Show how to obtain the strains ϵ_x, ϵ_y, and γ_{xy} associated with the xy axes. Note : γ_{xy} denotes shear strain.
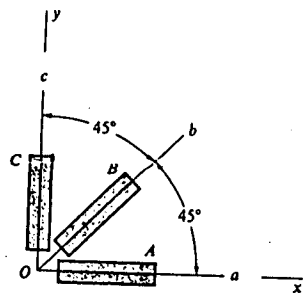
4. The beam, as shown in the figure, has a simple support at A and a clamped support at C. The bending modulus EI is constant along the length of the beam. Sketch the bending - moment diagram for the bending moments due to the load P.