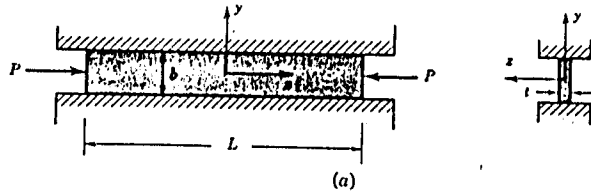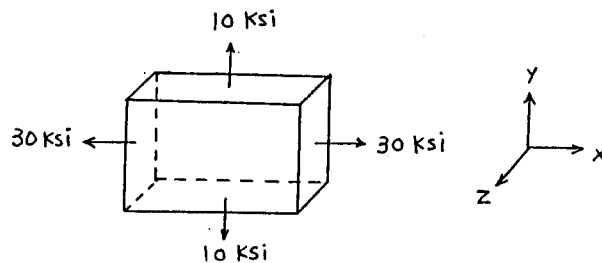1. A long, thin plate of width b, thickness t, and length L is placed between two rigid walls a distance b apart and is acted on by an axial force P, as shown in the figure. Find the normal strain in the z direction, i.e. ϵ_z. Note: The Poisson's ratio and modulus of elasticity of the plate are ν and E, respectively.

(a)

2. An aluminum plate is subjected to the following stress state:

(a) Draw the Mohr circle to express the stress state, (b) draw the maximum shear stress plane in the plate, and (c) calculate this maximum shear stress.

3. An object is subjected to unknown plane stress. Explain explicitly how you would measure the stress state experimentally by electric – resistance strain gage (for example a 45° strain rosette).

4. Calculate the maximum deflection v_{max} for a beam AB supporting a concentrated load P, as shown in the figure.