Determine the element stresses $\sigma_x, \sigma_y, \tau_{xy}, \sigma_1$, and σ_2 and the principal angle θ_p. Use the values of E, v, and t given in Problem 6.6.

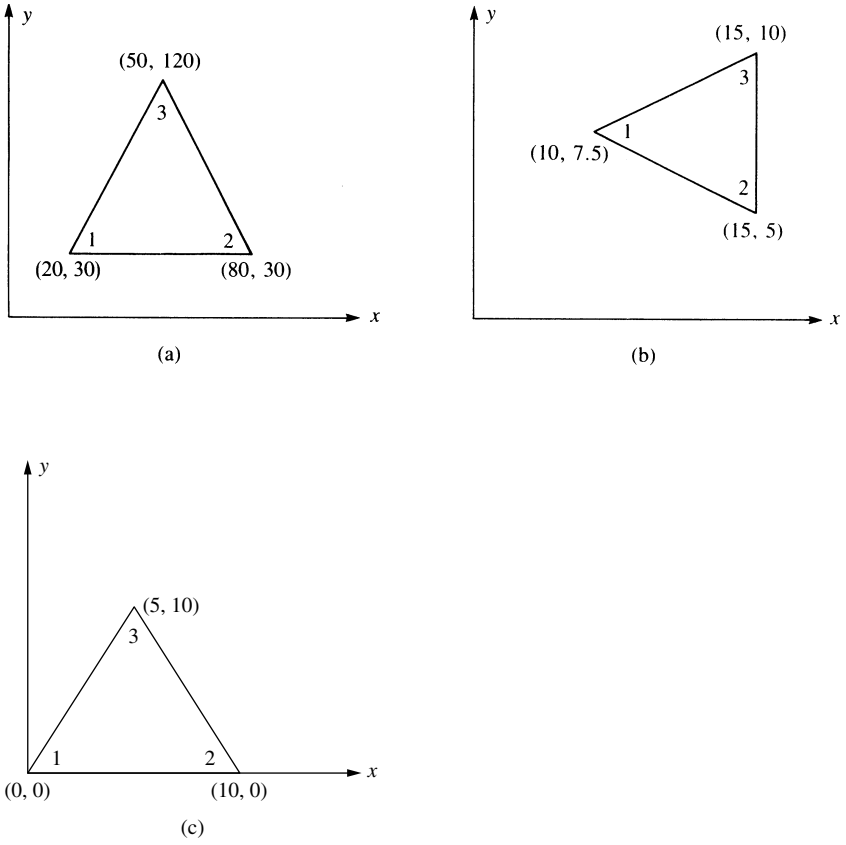

Figure P6–6

6.8 Determine the von Mises stress for problem 6.7

6.9 For the plane strain elements shown in Figure P6–9, the nodal displacements are given as

$$u_1 = 0.001 \text{ in.} \qquad v_1 = 0.005 \text{ in.} \qquad u_2 = 0.001 \text{ in.}$$
$$v_2 = 0.0025 \text{ in.} \qquad u_3 = 0.0 \text{ in.} \qquad v_3 = 0.0 \text{ in.}$$

Determine the element stresses $\sigma_x, \sigma_y, \tau_{xy}, \sigma_1$, and σ_2 and the principal angle θ_p. Let $E = 30 \times 10^6$ psi and $v = 0.25$, and use unit thickness for plane strain. All coordinates are in inches.