

## Homework 06

Consider the bar shown in Fig. 1, where the cross-sectional area  $A = 1 \text{ in}^2$ , and Young's modulus  $E = 2.3 \times 10^6 \text{ psi}$ . If  $q_1 = 0.05 \text{ in}$  and  $q_2 = 0.06 \text{ in}$ , determine the following (by hand calculation):

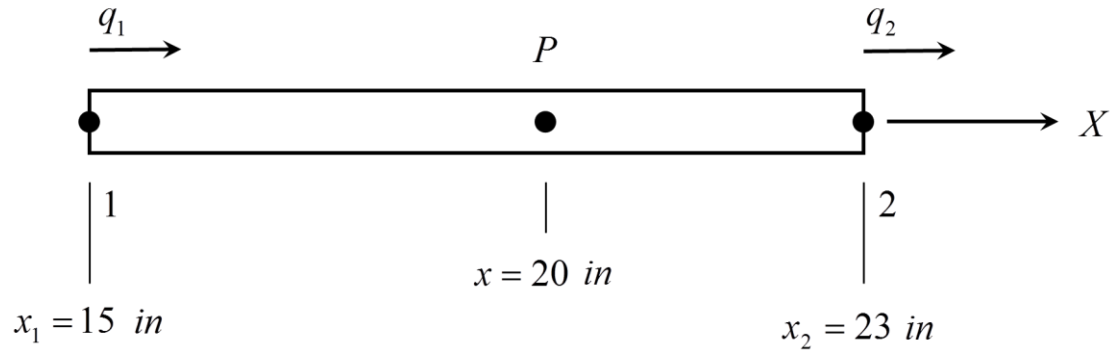


Fig. 1

- (a) the displacement at point  $P$ ,
- (b) the strain  $\epsilon$  and stress  $\sigma$  at point  $P$ ,
- (c) the element stiffness matrix,
- (d) the strain energy in the element.