1. A beam $AD$ having a constant flexural rigidity $EI$ is supported and loaded as shown in Fig. 1. Determine (a) the reaction forces $A_y$ and $C_y$ at $A$ and $C$, (b) the slopes $\theta_A$ and $\theta_B$ at $A$ and $B$, (c) the deflection $y_B$ at $B$.

![Fig. 1](image1.png)

2. **A.** Describe the principle of moments. **B.** For the beam shown in Fig. 2, consider section $n-n$ and determine (a) the shearing stress $\tau_a$ at point $a$, (b) the shearing stress $\tau_b$ at point $b$.

![Fig. 2](image2.png)

3. The magnitude of tightening force in the clamp is $P = 600$ N. Knowing that point $C$ is the centroid of section $a-a$, determine (a) the value of $\bar{y}$, (b) the stress $\sigma_A$ at point $A$, (c) the stress $\sigma_D$ at point $D$, (d) the value of $e$ if the stress at $E$ is zero, (e) the state of stress at point $B$.

![Fig. 3](image3.png)