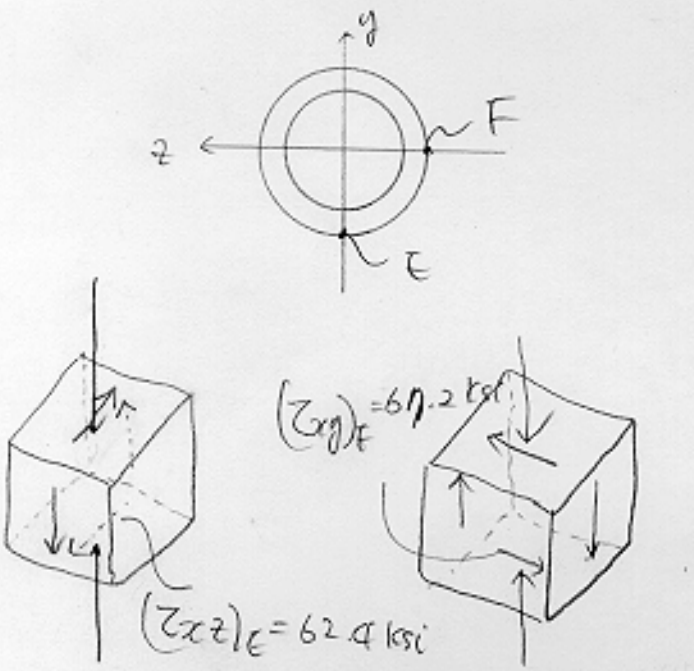
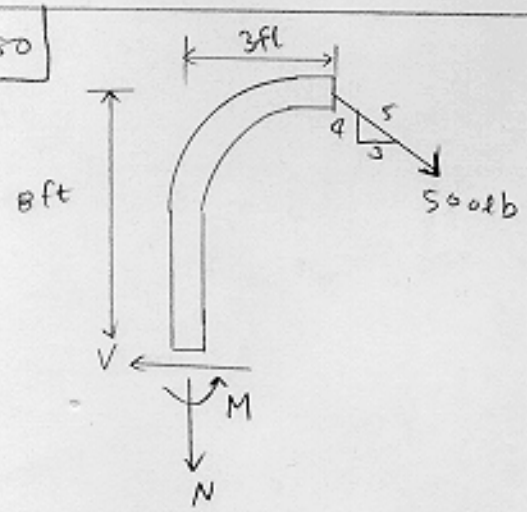
$(\tau_{zz})_F = \tau_{V_z} = 0$



B-50



· Equilibrium ;

$\Sigma M_o = 0$; $M - \frac{3}{5}(500)(8) - \frac{4}{5}(500)(5) = 0$

$M = 4400$ lb ft

$\Sigma F_x = 0$; $V - \frac{3}{5}(500) = 0$; $V = 300$ lb

$\Sigma F_y = 0$; $N + \frac{4}{5}(500) = 0$; $N = -400$ lb

· Section

$A = 4(3) - 3(2.5) = 4.5$ in^2

$I = \frac{1}{12}(3)(4^3) - \frac{1}{12}(2.5)(3^3)$

$= 10.375$ in^4

$Q_A = Q_B = 0$

· Normal stress

$\sigma = \frac{N}{A} \pm \frac{M \cdot c}{I}$

$\sigma_A = \frac{-400}{4.5} + \frac{4400(12)(2)}{10.375}$

$= 10089$ psi $=$ 10.1 ksi (T)

$\sigma_B = \frac{-400}{4.5} - \frac{4400(12)(2)}{10.375}$

$= -10267$ psi $=$ 10.3 ksi (C)

· shear stress

$\tau_A = \tau_B = 0$ ($Q_A = Q_B = 0$)