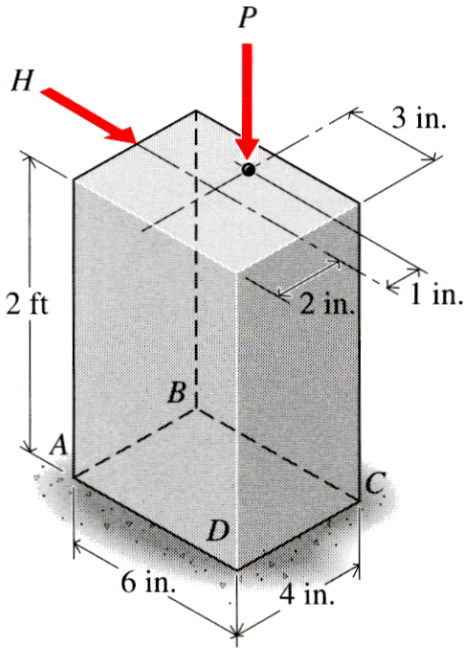
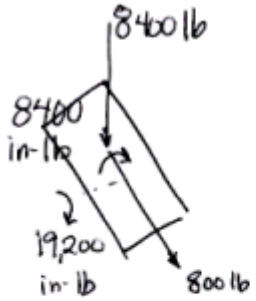
IDE 110 – Summer 2006 Quiz 24 **Name:**_____

A short post supports a vertical force P = 8400 lb and a horizontal force H = 800 lb, as shown. Determine the vertical normal stresses at corners A, B, C, and D of the post. Neglect stress concentrations.

Show work clearly and box your answers.





$\sigma = \frac{-8400}{6(4)} = -350$ psi $\quad \sigma = \frac{-19200(3)}{\frac{4(6^3)}{12}} = -800$ psi $\quad \sigma = \frac{-8400(2)}{\frac{6(4^3)}{12}} = -525$ psi

$\sigma_A = -350 + 800 + 525 = 975$ psi

$\sigma_B = -350 + 800 - 525 = -75$ psi

$\sigma_C = -350 - 800 - 525 = -1675$ psi

$\sigma_C = -350 - 800 + 525 = -625$ psi