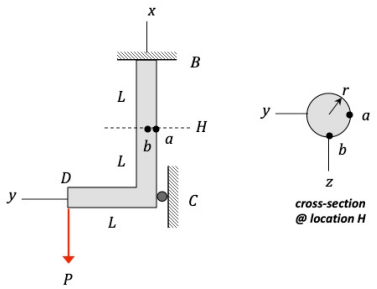
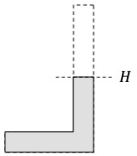
Quiet Week Example No. 2

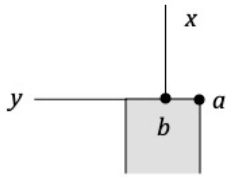


The L-shaped structural member above has a circular cross-section with a radius of *r*. The member is supported by a fixed connection to ground at B and a roller at C as it carries a downward vertical load of *P* at D. What is the absolute maximum shear stress in the member at points "a" and "b" on the cross-section at H? Expect the following steps in the analysis.

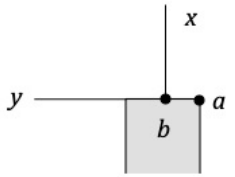
i. Equilibrium analysis
ii. Deflection analysis (for finding external reactions in indeterminate structures)
iii. Internal resultant analysis
iv. Description of the states of stress
v. Mohr's circles for the two states of stress
vi. Absolute maximum shear stress

SOLUTION



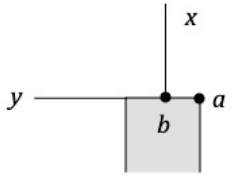


front view
@ H

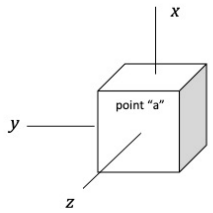


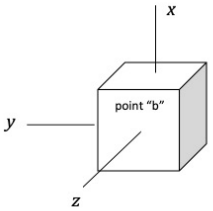
front view
@ H

internal resultant	stress @ a	stress @ b

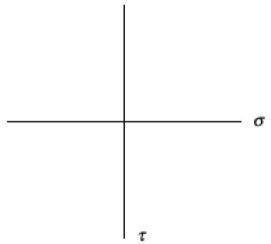


front view
@ H





Mohr's circle for point "a"



Mohr's circle for point "b"