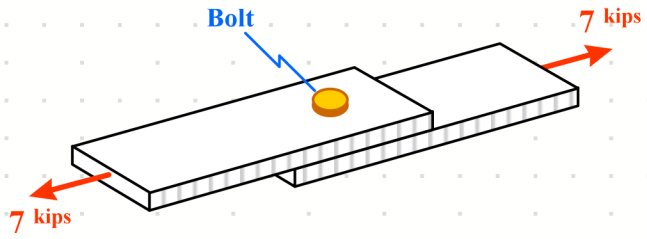
Worksheet #2A
Internal Shear Force / Stress

The steel lap joint is held together by a single, 1 inch bolt. Determine the shear force acting on the bolt and the corresponding shear stress?

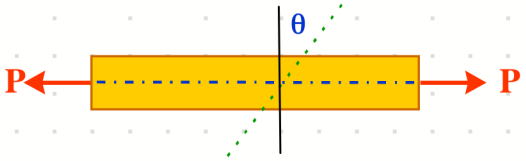


Worksheet #2B
Normal and Shear Stress

Given: A plane cut through a two force (centric axially loaded) member at an arbitrary angle θ from a vertical cut.

$$\sigma = [P/A_{transverse}] \cos^2 \theta$$

$$\tau = [P/A_{transverse}] \cos \theta \sin \theta$$



Plot the equations above for normal and shear stress. Use P=25 kips and A=0.785 in^2 and vary the angle of the cut from θ = 0 degrees to 180 degrees. Plot both curves on the same graph.

Worksheet #2C
Internal Forces

GIVEN: Two wooden members of uniform cross section are joined by the simple scarf splice shown. Knowing that the maximum allowable tensile stress in the glued splice is 75 psi, determine (a) the largest load **P** that can be safely supported, (b) the corresponding shearing stress in the splice.