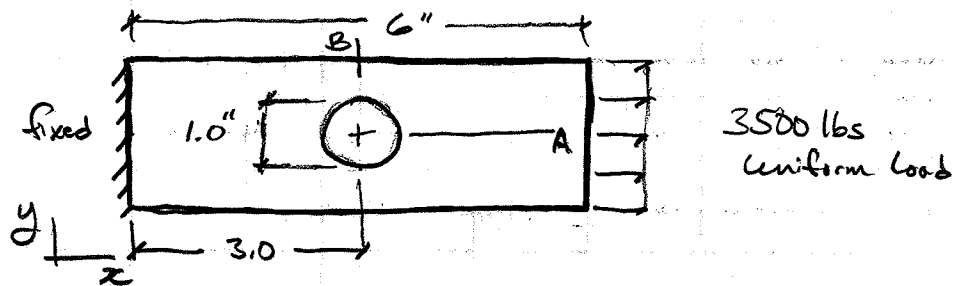


1/1

Given: 6061-T6 Plate with Hole, 2 x 1/4"

MOE  $10 \times 10^6$  psi  
 Poisson's .33  
 Ultimate 45 ksi  
 Yield 40 ksi

Stress Concentration Factors  
 Peterson's, 2<sup>nd</sup> Edition  
 Page 256

$$a = 1 - d/4 = 1 - 1/2 = .5$$

$$K_{ty} = .294 + \frac{2}{a} - .6a + 1.32a^2 \approx 4.33$$

$$K_{ty} = 4.3140$$

$$\sigma = K_{ty} \frac{F}{A} \quad (\text{Peak}) \quad @ \text{ top and bottom of hole}$$

$$\sigma = 4.3140 \frac{3500}{2(1.25)} = 30,198 \text{ psi}$$

1.9% diff

$$\sigma_{\text{FEA cal}} = 29,635 \text{ psi max}$$

Symmetry

x, 156

y, 246