Name:

Homework 1

Due 3 September 2019

1. Find the stress field in an infinite body with a hole under remote shear, as shown.

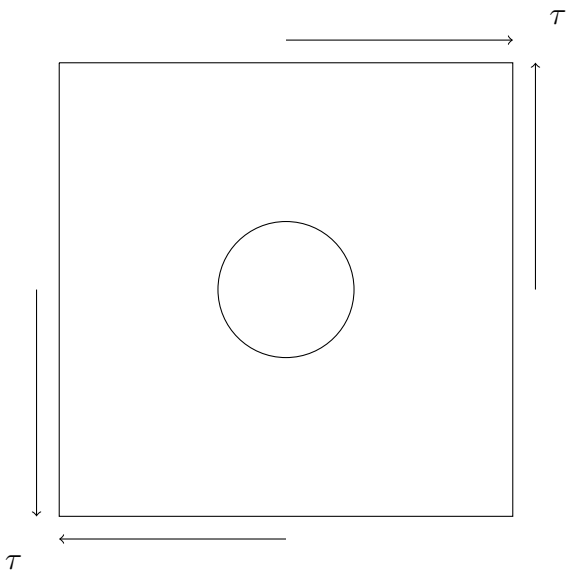

Figure 1: Figure for Problem 1

2. Use simple beam theory to find the strain energy release rate of the following cracked beam

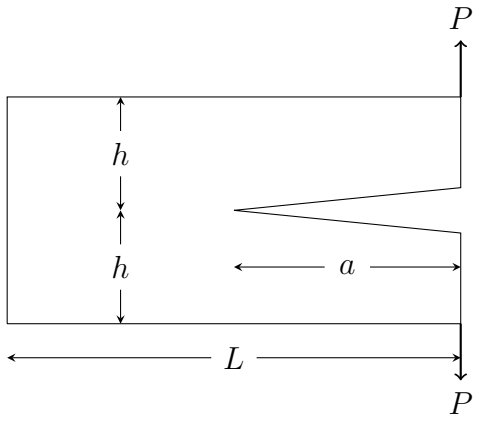

Figure 2: Figure for Problem 2

3. A cracked beam is subjected to a pair of forces at the center of the crack. Find the minimum P that can split the beam, where $E = 70$ GPa and $G_c = 200$ Nm/m^2. Note: the thickness is 0.5 cm, all dimensions are in cm.

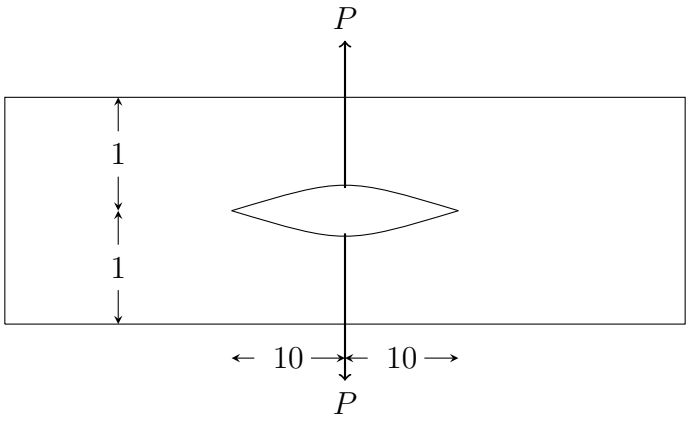

Figure 3: Figure for Problem 3