

Name:

## **Homework 4**

**Due 17 October 2019**

Use a finite element software package of your choosing to model a center-crack, ensure that your model is sufficiently wide to match the infinite solution. Assume that  $E = 70$  GPa and  $\nu = 0.3$ . Use an analytic solution to calculate  $K_I$  for an infinitely wide panel.

Compare various methods we have discussed in class to the analytic solution

- Direct method (both stress field and displacement field)
- Virtual crack closure
- J-integral