EAS4200C Aerospace Structures Homework #5 (Due: Oct. 9th)

1.   A thin aluminum sheet is to be used to form a closed thin-walled section. If the total length of the wall contour is 100 cm, find the cross-sectional shape that will achieve the highest torsional rigidity, GJ, among circular, square, and equilateral triangular shapes.

2.   Find the torque capability of the thin-walled bar with the section shown in the figure. Assume that the shear modulus G = 27GPa and the allowable shear stress of τ_{allow} = 187MPa.

0.3 cm

10 cm

20 cm

$t = 0.3cm$