

FALL 2013 | MAE 5503
Mechanics of Advanced Composites – Prof. Hamed Hatami-Marbini
Homework 9 - November 20, 2013

DUE: Wednesday December 4

Points Distribution:

15 points maximum

Problem description:

Consider a 0.01 inch thick square cross-ply laminated plate (45/-45/45/-45) with the following lamina properties:

$$E_1/E_2 = 40, G_{12} = G_{13} = 0.6E_2, G_{23} = 0.5E_2, \nu_{12} = 0.25, E_2 = 10^6 \text{ psi}$$

and shear correction coefficient of 5/6 subjected to a uniform distributed load $q=1$ ksi. Using the solution discussed in the class, determine the deflection at $x=a/2$ and $y= a/2$ where a is the dimension of the plate and equal to 1 in.