

MAE 582 Composites  
Test #2 Addendum  
Dr. R. C. Wetherhold  
Available: 5 November, 2004  
Due 10 November, 2004, 9:00

Name \_\_\_\_\_  
(print)

**Show all work.**

Pledge: I have neither given nor received help on this test:

Signed: \_\_\_\_\_

1) We claimed that a  $\pi/N$  symmetric laminate was thermally isotropic for  $N \geq 2$ . Choosing graphite/epoxy from the standard list of PROMAL, demonstrate that the thermal expansion coefficients for  $N=2$  and  $N=3$  are the same. Rotate the  $N=2$  laminate  $45^\circ$  and calculate the coefficients; are they the same? Summarize the results in a table.

(8 pts)

2) Use glass/epoxy properties listed in the standard PROMAL data base. Using the class example given for two stacked sublaminates which combine to give one laminate and with layer thickness  $t = 0.3$  mm, plot the value of  $B_{16}$  against  $\theta$ . Hand in your spread sheet or computer program with the plot.

(8 pts)