

2.081J/16.230J Plates and Shells

Self-Evaluation Quiz
Wednesday, March 1

Problem 1 Write in the expanded form:

- (a) $M_{\alpha\beta}\kappa_{\alpha\beta}$
- (b) $w_{,\alpha\beta}$
- (c) $\varepsilon_{\alpha\beta}\delta_{\alpha\beta}$
- (d) $w_{,\alpha}w_{,\beta}$
- (e) $w_{,\alpha\beta\alpha\beta}$

Problem 2 Compare the bending rigidity of a beam EI and that of a plate D , and point out the difference in terms of dimensional quantity and material parameters.

Problem 3 What is the buckling coefficient for the square plate clamped on all four edges? See the graph on Section 4.3.3.

Problem 4 A square simply supported plate is loaded by a point force P at the center. Determine the load-deflection relationship (P vs. w_0) using the energy method. [*Hint: Assume the sinusoidal shape for the deflection, the same as in Problem #1 of Homework #2.*]