## 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  $(P \text{ vs. } w_0)$  using the energy method. [Hint:Assume the sinusoidal shape for the deflection, the same as in Problem #1 of Homework #2.]