

Mech 517⁴¹⁷ HW April 10, 2008 (due 4/17/08)²²

1. Modify the transient conduction script to use a diagonal capacity (mass) matrix by adding all the entries in a row and placing it on the diagonal.

2. Repeat the solution for $\rho c = 0$. If it gives impossible answers reduce the time step. (with diagonal mass)

517. Reformulate the script to use 1/4 symmetry and square elements where

$$S^e \approx_{4 \times 4} = \frac{k t}{6} \begin{bmatrix} 4 & -1 & -2 & -1 \\ -1 & 4 & -1 & -2 \\ -2 & -1 & 4 & -1 \\ -1 & -2 & -1 & 4 \end{bmatrix}$$

$$M^e \approx = \frac{\rho L^2 t}{36} \begin{bmatrix} 4 & 2 & 1 & 2 \\ 2 & 4 & 2 & 1 \\ 1 & 2 & 4 & 2 \\ 2 & 1 & 2 & 4 \end{bmatrix}$$

due 4/22/08