

MECH151 Spring 2010
Homework #2 due Apr. 13

1. Write a function `truss2s.m` to compute stresses after displacements have been determined. There is a template on the web site.
2. Write a script called `p3p24.m` that solves problem 3.24 using your `truss2d` function. Start with the template `p3p24.m` on the class web site. Submit your script plus a diary file or command window printout showing answers.
3. Modify your script to solve problem 3.25.
4. Modify it again to attempt to solve problem 3.26. Explain why it crashes, in terms of the physical situation.
5. Solve problem 3.12 using your `truss2d` element.
 - (a) Using one element.
 - (b) Using two elements.
 - (c) Using three elements.

This problem introduces the idea that all but the simplest finite element solutions are *approximate*, in this case due to the taper. Our elements are prismatic (constant cross section along their length), so the best we can do is use a sequence of elements with increasing A . For each element in your model, use the area at the center point of that element. For example, with two elements, use $A(L/4)$ and $A(3L/4)$.