

ASEN 5007 Introduction To Finite Elements - Fall 2013

Homework Assignment #3 Chapters 6–7 of Notes

Due Tuesday Sep 24, 2013 for on-campus students; Sep 26 for CAETE students

Please don't forget to attach this cover sheet to your returned homework and write your name(s) on it

Exercises:

7.1 (easy, about one minute)

7.2 remember that *no triangles are allowed* when you draw a mesh within region ABCD. Several acceptable solutions with quadrilaterals are possible; some are a bit tricky.

7.3

7.4 (long by hand, may be helped by computer (Matlab, Mathematica, etc) or programmable calculator)

7.7 (see Notes below)

Grading weights: given at the start of each Exercise.

Note 1: please do all necessary sketches for 7.1, 7.2 and 7.7 on your own paper. Engineering paper should be used. You should start each Exercise on a new page to help grading, but don't need to start a new page for items of an Exercise.

Note 2: For 7.7(d) and 7.7(e) truncate the mesh at a sufficiently large distance from the loads. (The mesh should occupy a rectangular region and use rectangular elements, since that is easy to draw). No need to use infinite elements, but be careful that vertical rigid-body motions be restrained as necessary. As regards what BC to place on truncated boundaries, use your judgement.