Math 3593H Honors Mathematics II Spring Semester 2013

Assignment 10 - Due Thursday 4/11/2013

Read: Hubbard and Hubbard Sections 6.1 and 6.2.

Exercises:
Section 6.1 (pages 570 - 571): 1, 2, 3*, 4a*, 5, 6, 7, 8, 9*, 10*, 12*.
Section 6.2 (pages 575 - 576): 1, 2*, 3* 4*, 5, 6.

Extra question*: Express the following as linear combinations of elementary forms:
(a) $(3dx \wedge dy - 2dx \wedge dz) \wedge (3dy \wedge dz - 2dx \wedge dy)$
(b) $(5dx \wedge dy - 3dy \wedge dz) \wedge (dx + 2dy + 3dz)$

Comments:
Section 6.1 is overly complicated and I hope to give a more straightforward explanation of some things in class. My intention is that forms should be easy, not scary. I think the problem is understanding what they are in the first place, and if you read Section 6.1 first I think you might get put off. In particular, we will not use definition 6.1.12 as the definition of the wedge product. I will define it in a different way which, I think, is easier. Note that the notation for anchored parallelograms which is used in the discussion of form fields on page 569 onwards is not standard, and appears first in Section 5.1.