

PMAT 613 L01 Fall 2009

Assignment 2

Questions taken from the text by I. Stewart (3rd Edition) will be specified by page and number. Due Oct 9, 2009.

1. Show that the Gaussian integers $\mathbb{Z}(i)$ are a euclidean domain, where $\partial(a + bi) = a^2 + b^2$.
2. Show that $\mathbb{Z}(\omega)$ is a euclidean domain, where $\partial(a + b\omega) = a^2 - ab + b^2$. [Hint : this is actually closely related to Question 1.]
3. In a euclidean domain (D, ∂) , show that q, r are unique in the division algorithm.
4. 3.1a, 3.1b
5. 3.2a, 3.2b
6. 3.3a, 3.3b
7. 3.4
8. 3.5
9. 3.6 for 3.5b