

Math 2001: Homework P3

Due: September 18, 2013

1. From the book do problems:

(a) 1.4.3, 1.4.10, 1.4.11

(b) 1.5.2

(c) 1.6.5, 1.6.10

2. A point (m, n) in \mathbb{R}^2 is a *lattice point* if both $m, n \in \mathbb{Z}$. Prove that the number of lattice points inside any circle centered at the origin is a number of the form $4k + 1$ for some integer k (This is 2.1.2 in the text).

Hint: For (a), split the set of lattice points into subsets, depending on the quadrants.