CHAPTER 3 HOMEWORK, PART 2 (§§ 4–7)

MAT 421: NUMBER THEORY

Directions: Each group is responsible for all of the problems listed. No problem should be attempted before we cover the material indicated with it. I only need one submission from each group. I will give time in class for groups to meet and work; however, you should plan to meet outside class as well.

1. GROUPS

Group 1	Group 2	Group 3
Melissa Dyess	Aaron Ayers	Sr. Maria
Shannon West	Kristie West	
Stephanie Williams	Ryan Anderson	

2. EXERCISES

§3.4: The Euclidean Algorithm.

- *After the description of the algorithm:* p. 111 #2, 6, 14
- *After the description of the Extended Euclidean Algorithm:* p. 111 #4

§3.5: The Fundamental Theorem of Arithmetic.

- *After the statement of the Theorem:* p. 120 #2, 4(c)
- *After Lemma 3.5:* p. 121 #10, 12
- *After the proof of the Theorem:* p. 120 #6, 8, 24, 26
- *After the definition of least common multiple:* p. 122 #28(a,c)
- *After the proof of a big fact:* p. 122 #30
- *After the statement of Theorem 3.16:* p. 122 #28(e,f), 64
- *After the proof of Theorem 3.16:* p. 122 #36, 38
- *After Theorem 3.17:* p. 124 #56
- *After the famous proof that $\sqrt{2}$ is irrational:* Prove that $\sqrt{8}$ is irrational.

§3.6: Fermat Factorization and Fermat Numbers.

- *After the description of Fermat Factorization:* p. 135 #4, 6
- *After the description of Fermat numbers:* p. 136 #16 (optional)

§3.7: Linear Diophantine Equations.

- *After the statement of Theorem 3.23:* p. 141 #2, 4
- *After the proof of Theorem 3.24:* p. 142 #11(b,c), 15