

INTRODUCTION TO NUMBER THEORY

Spring 2016

Homework # 2

Last Updated: February 4, 2016

Due Date: Thursday February 11th

I recommend you read Chapters 3 and 5, and Chapters 1 and 2 if you haven't already.

FRINT Chapter 3:

- (1) 3.1, parts (a), (b), (c) (*although you don't need to make the whole table — only as much as you need*), and (d)
- (2) 3.2
- (3) 3.5, parts (a), (b), (c), (d), and (e)

FRINT Chapter 5:

- (4) 5.1
- (5) 5.4, parts (a) and (b)
- (6) 5.5, parts (a), (b), and (c)

Additional Problems:

- (7) In the Euclidean Algorithm, you get a sequence of remainders r_1, r_2, \dots . For example, when finding the greatest common divisor of 5 and 3 using the Euclidean Algorithm, the three remainders are 2, 1, and 0.
 - (a) Can you find an initial pair of numbers (a, b) so that the Euclidean Algorithm on a and b produces the sequence of remainders 9, 4, 1, 0?
 - (b) Are the a and b you found above unique?