

Math 2106-D, Foundations of Mathematical Proof
Homework 2
Due September 7, 2017

Do the following problems from Hammack:

§2.7: 4 §2.9: 10 §2.10: 10 Chapter 4: 2,8,12,14,18,20,26,28

Also turn in the following exercises:

A1 Consider the following two statements, where we note that an irrational number is a number which is not rational, i.e., which is not a ratio of two integers:

- (a) The sum of any two rational numbers is a rational number.
- (b) The sum of any two irrational numbers is an irrational number.

For both of these statements, decide whether it is true or false, and prove your claim.

A2 Show that if x and y are integers, and if $x^2 + y^2$ is even, then $x + y$ is also even.