

## Math 1050-006 Homework 1

Assigned: 8/29/2012

Due: 9/5/2012

Note: This will be the largest assignment in terms of problems for the entire semester, while this assignment may look like it will take forever, many of the problems are true or false or can be answered in only a couple of lines. A calculator is not necessary for this assignment. If you are unable to simplify an expression by hand leave it unsimplified. As with all homework assignments show all work to receive all credit. If you are unsure whether you need to show a step or not, show it. You do not need to derive any equations unless the problem tells you to. If an equation has conditions to use it, be sure to check that those conditions are met.

### Book Problems:

- 1) Sets and Numbers: 1-6, 13-16 (if false explain why)
- 2) Rules for Numbers: 1, 2, 6, 7, 11, 12, 16, 17 (if false explain why)
- 3) Functions: 1-8
- 4) Sequences: 1, 2, 3, 7, 8, 13, 14, 16, 17, 18, 19, 23
- 5) Sums and Series: 2, 4, 5, 8, 13, 16, 17

### Other Problems:

- 1) What is a difference between an infinite set and a sequence?
- 2) If  $g$  is a function and  $g(x) = x$  for every  $x$  contained in  $D$  is

$g(x): \mathbb{N} \rightarrow \mathbb{R}$  an identity function?

If not explain why not.

- 3) Can a sequence be both an arithmetic sequence and a geometric sequence? If so give an example, if not explain why not.
- 4) The Fibonacci sequence is 1, 1, 2, 3, 5, 8, 13, 21, 34, ... where the next number in the sequence is determined by adding the 2 previous numbers in the sequence (ie  $8=5+3$ ). Is the Fibonacci sequence an arithmetic or geometric sequence or neither? Justify your answer.

**Please staple your solutions and clearly write your name and student id number on the top of the first page of your solutions.**