## Math 2534 Homework 6 Spring 2018

Put all work on another sheet of paper: Follow Homework requirements.

**Problem 1:** Using the Quotient Remainder Theorem find the following: If  $a \mod 6 = 2$  and  $b \mod 6 = 5$ , find  $(a+b) \mod 6$ 

**Problem 2:** According to the Quotient Remainder Theorem how are the integers partitioned by Zmod 6.

**Problem 3:** Find the value of  $\sum_{i=1}^{n+2} (-1)^i (2^i)$  when n = 3.

**Problem 4:** Given the recursive sequence  $a_1 = 3$ ,  $a_2 = 5$ ,  $a_n = a_{n-1} + a_{n-2}$ , n > 1, find the first six terms in this sequence.

**Problem 5:** If you are given a sequence function  $f(x) = e^{n-1}$ , find the recursive sequence that will give you the same results.

## **Problem 6:** Reduce the following factorials.

- a)  $\frac{(n+1)!}{(n-2)!}$
- b)  $\frac{(n-2)!}{(n+5)!}$