

Math 565 - Spring 2019

Homework 4

Due March 13, 2019

How many times can you subtract 7 from 83, and what is left afterwards? You can subtract it as many times as you want and subtract it as many times as you want, and it leaves 76 every time.

— Unknown

Turn in: 4-1.1, 4-1.5, 5-2.1 (From the textbook) and the following:

- (1) If m, n are positive integers and $m|n$, show that $a \equiv b \pmod{n}$ implies that $a \equiv b \pmod{m}$, but not necessarily conversely.
- (2) Using the same method as in class, show that $257 \mid 10^{128} + 1$.