MA 261 — Homework #1

Due in class Wednesday, January 29, 2014

1. Prove the following statement:

Let k be an integer. If $k \equiv 64 \pmod 7$, then $k \equiv 36 \pmod 7$.

2. Do Exercise 1.8 part (5):

Characterize all integers m that satisfy the congruence $m \equiv 4 \pmod 3$.

3. Prove Exercise 1.15:

Let a, b, and n be integers with $n > 0$. Show that if $a \equiv b \pmod n$, then $a^2 \equiv b^2 \pmod n$.