Math 112-40, Mr. Church, Homework 7
Due at the beginning of class on Friday, November 6.
Please staple your homework.

1. Prove that the Division Algorithm (Theorem 4.1) gives a unique result. That is, show that given positive integers a and b with $a > b$, if we have q and r so that

$$a = bq + r \qquad \text{and} \qquad 0 \le r < b$$

and we also have integers q' and r' so that

$$a = bq' + r' \qquad \text{and} \qquad 0 \le r' < b,$$

then $q = q'$ and $r = r'$.

2. <u>Use the Euclidean Algorithm</u> to compute:

   (a) $\gcd(654, 321)$
   (b) $\gcd(999999, 2)$
   (c) $\gcd(143, 91)$
   (d) $\gcd(48, 36)$
   (e) $\gcd(57, 29)$

3. Exercise 4.4(c) and 4.4(d).