PMAT 3370 – Number Theory   Assignment #2
Fall 2006

Instructions

- Answer each question completely; justify your answers.
- This assignment is due at: 5:00 pm on Wednesday September 27th.

1. Exercise 1.10.

2. Exercise 1.11, parts (b), and (f).

3. Exercise 1.16, parts (a), and (b).

4. Let a, b, and c be integers such that $a^2 + b^2 = c^2$. Prove that at least one of a and b is even.

5. Exercise 2.1.

6. Exercise 2.3.

7. Exercise 2.7.

8. Exercise 2.11, parts (b), (c), and (d).

9. Exercise 2.17.

10. Define the sequence $L_1, L_2, L_3, \ldots$ by $L_1 = 1$, $L_2 = 3$, and $L_{n+2} = L_{n+1} + L_n$ $\forall n \geq 1$. In this sequence, L_n is called the nth Lucas number. Prove that every two consecutive Lucas numbers are relatively prime.