MATH 3370 – Number Theory — Assignment #5
Fall 2012

Instructions

- Answer each question completely; justify your answers.
- This assignment is due at 17:00 on Wednesday October 24th in Assignment Box #43.

1. Exercise 3.7.
2. Exercise 3.8.
3. Prove that a number is divisible by 3 if and only if the sum of its digits is divisible by 3.
4. Exercise 3.15.
5. Exercise 4.5.
6. Exercise 4.14.
7. Exercise 4.16.
8. Exercise 4.21.
9. Wilson's theorem asserts that if p is a prime then $(p-1)! \equiv -1 \pmod{p}$. Prove the converse of Wilson's theorem.
10. Without factoring n, prove that $n = 901$ is composite.