

Math 412 Homework 5

your name

Due date: Oct 2, 2015

Solve the following problems. Please remember to use complete sentences and good grammar.

1. (4 points) Suppose that $n = 917,4x8,835$, where x is a missing digit. Find all possible values of x so that n is divisible by k , where

$$k = 9, k = 11, \text{ or } k = 13$$

2. (4 points) Prove that $\phi(mn) = (m, n)\phi([m, n])$.
3. (4 points) Find all positive integers n so that $\phi(n)|n$.
4. (4 points) Use Euler-phi-function to show that there are infinitely many primes.