

**HW1, due Thursday, September 12**  
**Math 403, Fall 2013**  
**Patrick Brosnan, Instructor**

**Reading Assignment**

Please read Chapter 1 of Gallian's book..

**Writing Assignment**

1. Find all positive integers less than 25 which are relatively prime to 25.
2. Let  $n$  denote a positive integer. Suppose that  $n$ ,  $n + 2$  and  $n + 4$  are all prime. Show that  $n = 3$ .
3. Find integers  $m$  and  $n$  such that
$$41m + 12n = 1.$$
4. Compute  $7^3$  modulo 9. Then compute  $7^{31}$  modulo 9.
5. Show that  $9n + 7$  and  $5n + 4$  are relatively prime for all  $n$ .