Math 412

Quiz 2

You have 15 minutes to complete the quiz. You may use facts you have proven on the homework, ***assuming that that does not make the problem completely trivial.***

Name: _____

1. (3 points) For integers a and n with $n > 0$, give the definition of *the congruence class of a modulo n*. List the elements in $[4]_9$ (with the help of some dots).

2. (4 points) Consider positive integers a, b and n such that $(a, n) = 1$, and $a \equiv b \pmod{n}$. Prove that $(b, n) = 1$.

3. (3 points) True or false? Justify your answer with a proof if it is true or a counterexample if it is false.

   Given positive integers a, b and n. If $[a] = [b]$ in $\mathbb{Z}_n$, then $(a, n) = (b, n)$.