MATH 42-NUMBER THEORY
PROBLEM OF THE DAY #12
DUE THURSDAY, MARCH 17, 2011

1. List the squares in U_{11}, U_{13} and U_{17}. Is it true that a square times another square is always a square? What about a non-square times another non-square? A square times a non-square?

2. Compute $a^{(p-1)/2} \mod p$ for at least one square and at least one non-square for $p = 11,\ 13,\ 17$. Do you notice a pattern?