

Math 361

Quiz 9

1. (4 pts.) Find all units in the ring \mathbb{Z}_{10} .

2. (6 pts.) An element x in a ring R is called *idempotent* if $x^2 = x$. A ring with unity is called *Boolean* if every element is idempotent.

Assume R is a Boolean ring. Prove:

(a) For all $r \in R$, $r + r = 0$. (Hint: Consider $(r + r)^2$.)

(b) For all $r \in R$, $r = -r$.

(c) R is commutative.