Math 667
Homework Questions #2
Due: September 21, 2010

Remark: Each answer will be graded on the basis of its correctness, its logical structure, and how well it is written (style, form, spelling and grammar).

5. For which integers $n$ does $\mathbb{Z}_n$ have zero divisors?

6. Find all of the units in $\mathbb{Z}[i]$.

7. Find all of the zero divisors in $\mathbb{Z}[i]$.

8. Prove the following: If $x$ and $y$ are units in a ring $R$, then so is $xy$.

9. Does $\mathbb{Z}[\sqrt{2}]$ contain a zero divisor? Prove your result.