Math 525 — Quiz 1 – August 28

Name:_____

1. Complete the following definition of an ideal: An ideal I in a commutative ring R is a subset $I \subset R$ such that ...

2. Complete the following definition of an integral domain: A commutative ring R with 1 is called an *integral domain* if ...

3. Is the matrix ring $M_2(\mathbb{R})$ a field? Why or why not?

4. Give the definition of the field norm $N \colon \mathbb{Q}[\sqrt{5}] \to \mathbb{Q}$, and find the norm of $2 + \sqrt{5}$.