Math 525 — Quiz 2 – September 2

Name:_____

1. The book states a proposition about polynomials and degrees that includes the statement $\deg(fg) = \deg(f) + \deg(g)$. How is the case of $f = 0$ handled?

2. Give an example of a zero divisor in the group ring $\mathbb{Z}[C_3]$ where $C_3 = \langle g \mid g^3 = 1 \rangle$ is the cyclic group with 3 elements.

3. The group ring $\mathbb{R}[Q_8]$ is also a vector space over $\mathbb{R}$. What is its dimension?

4. In the ring $M_2(\mathbb{Z})$, is the set of matrices with first column identically zero a subring?