

Math 525 — Quiz 07 – September 22, 2023

Name: _____

1. What are the units in the ring $\mathbb{Z}[x, y]$?

2. Let R be the polynomial ring $\mathbb{R}[x_1, x_2, \dots]$, with infinitely many variables. Is

$$z = \sum_{i=1}^{\infty} x_i$$

an element of R ? Why or why not? *Hint: how is the polynomial ring in infinitely many variables defined?*

3. Let I be the ideal (7) in the ring \mathbb{Z} and J be the ideal (7) in the ring $\mathbb{Z}[x]$. Are the rings

$$\mathbb{Z}/I[x] \quad \text{and} \quad \mathbb{Z}[x]/J$$

isomorphic?