

Name: _____

Math 4400 Quiz 5

July 10, 2016

Instructions: You have until the end of class to complete this quiz. This quiz is two pages, and worth 20 points. Make sure to write your name at the top of the quiz. Show all of your work for full credit!

1. (10 points) Let R be a ring and let $r \in R$. Show that $(-1_R) \cdot r = -r$. In other words, show that $(-1_R) \cdot r + r = r + (-1_R) \cdot r = 0_R$. **Make sure to specify which ring axiom you're using at each step!**

2. (a) (5 points) Find the inverse of $2 + 3\sqrt{3}$ in $\mathbb{Z}[\sqrt{3}]/7\mathbb{Z}[\sqrt{3}]$

(b) (5 points) Find the inverse of $2 + 3\sqrt{5}$ in $\mathbb{Z}[\sqrt{5}]/7\mathbb{Z}[\sqrt{5}]$