

Quiz 5

Student ID Number:

Name _____

Math 180B, 3PM

Please justify all your answers

May 23, 2019

Please also write your full name on the back

1. Does $4 + 5i$ divide $14 + 3i$ in the ring $\mathbb{Z}[i]$?
2. Let n be an integer greater than 1. Prove that n can be written as a sum of two squares if any prime divisor of n that is $3 \pmod{4}$ occurs with even multiplicity. *Hint: Recall that if x is a sum of two squares and y is a sum of two squares then so is xy .*
3. Bonus: Prove the converse to problem 2.