

Math 366 - Quiz 4

Name and Student ID:

Question (4+3 pts.): a) Show that  $I_{10} = \mathbb{Z}[\sqrt{10}]$  is not a UFD. (Hint: Factorize 6 in  $I_{10}$ . At some point in your justification, it may help to reduce an equation modulo 10.)

b) Verify that  $(3) = (3, 1 + \sqrt{10})(3, 1 - \sqrt{10})$  in  $I_{10}$ .