

MAT347Y1 HW13 Marking Scheme

Friday, January 29

Total: 26 points.

8.2.3: 4 points. Two common errors (make sure you check all the conditions in a definition):

- A PID is *not* “a ring in which every ideal is principal.”
- Even in a PID, not every prime ideal is maximal.

8.2.5:

- (a) 4 points. 2 per ideal (one ideal is already done by the textbook)
- (b) 3 points. Note that this sort of question is best done in terms of generators (otherwise there are way too many coefficients to keep track of)
- (c) 5 points. 2 per ideal, 1 for the conclusion.

Handout #12: 4 points.

- (2) Define q and r appropriately (Note: you can't always pick \tilde{c}, \tilde{d} such that $|c - \tilde{c}| < \frac{1}{2}, |d - \tilde{d}| < \frac{1}{2}$. What if $c + di = \frac{1}{2} + \frac{1}{2}i$?)
- (2) Prove q and r satisfy the necessary conditions

Handout #14:

- (a) 2 points.
- (b) 4 points.