Problem Set 8

Due Friday, December 1.

*Algebra*

Math 110A, Fall Quarter 2017

1. Do problems 4.5.1 (b), 4.5.4, 4.5.8, 4.5.17 in the textbook.

2. Let $n \geq 1$ be an integer. Show that the map

$$f(x) \mapsto \overline{f}(x)\colon \mathbb{Z}[x] \to \mathbb{Z}_n[x]$$

given by

$$\overline{f}(x) := \sum_{i=0}^{d} [a_i]x^i \qquad \text{for } f(x) = \sum_{i=0}^{d} a_i x^i \in \mathbb{Z}[x] \ (a_i \in \mathbb{Z})$$

is a homomorphism.

3. Do problems 5.1.1 (b), 5.1.4, 5.1.6 in the textbook.

4. Do problems 5.2.2, 5.2.8, 5.2.11, 5.2.14 (b) in the textbook.