

Homework

Thursday, November 3

Written homework. Due in writing, at the beginning of class,

Thursday, November 10. 5.31(i), 5.34, 5.37, 5.49, 5.57.

Warmup exercises. To present in class.

Tuesday, November 8. 5.44, 5.48

Thursday, November 10. 6.1, 6.11.

Reading assignment. These reading questions cover the first half or so of Section 6.1. On Tuesday, we should be discussing subsections on divisibility and roots, and on Thursday we will discuss the subsection on greatest common divisors.

1. Give an example, in $\mathbb{Q}[x]$, of one polynomial that divides another polynomial.
2. Give an example in $\mathbb{Q}[x]$ of Proposition 6.4.
3. Give an example in $\mathbb{Q}[x]$ of Proposition 6.8. Make your polynomial have degree at least 3.
4. Give an example in $\mathbb{Z}[x]$ of Proposition 6.10.
5. Give a good example in $\mathbb{Q}[x]$ of Corollary 6.15.
6. Find the gcd in $\mathbb{Q}[x]$ of $a(x) = x^2 - 1$ and $b(x) = x^3 - 3x^2 + 4x - 2$.
7. Illustrate Corollary 6.26 by finding several polynomials in $\mathbb{R}[x]$ that have i as a root, and show that each one is in the ideal generated by $x^2 + 1$.