

Items to Know for The Final Exam

Sections covered

The final exam will cover topics from chapters 1 through 6, including sections 6.2 and 6.3.

Definitions

Be sure to know all of the main definitions. See the extra credit homework set as well as

- Congruence in $F[x]$ and in R
- Extension Field
- Ideal / Coset / Kernel / Image

Theorems/Corollaries/Lemmas to know:

- See the theorems and corollaries listed in the previous review sheets
- Be sure to know the named theorems, especially
 - The Division Algorithm (theorem 1.1)
 - The Euclidean Algorithm (theorem 1.6)
 - The Remainder Theorem (theorem 4.14)
 - The Factor Theorem (theorem 4.15)
 - The Subring Test (theorem 3.6)
 - The Ideal Test (theorem 6.1)
- Be sure to also know the key (un-named) theorems:
 - Theorem 1.3
 - Theorem 2.11
 - Theorem 3.9
 - Theorem 3.12
 - Corollary 5.5
 - Theorem 5.10 / Theorem 6.9
 - Theorem 6.14
 - Theorem 6.15
- The main un-named ones will be provided on a sheet

Know the proofs of (ie: be able to replicate these proofs):

- See theorems and corollaries given in previous review sheets
- Homework questions

Know how to use/compute:

- See previous review sheets

Format of the test

- A definitions section
 - Short answer / matching / true-false
- A proof-writing section
 - Same as previous tests
 - Is a set a ring / subring / ideal?
- A computational section
 - Same as previous tests
 - Tables / modulus questions / finding the gcd / find kernel or image of function / etc.
 - Is a set a ring / subring / ideal?
 - Is a function a homomorphism / isomorphism?
- A critical thinking section
 - a couple of baby proofs or computational questions that you won't have seen before