Items to Know for
Test 2

Sections covered
Test 2 will cover the topics from chapters 3 and 4. You will need to know the following information.[1]

Definitions
Be sure to know all of the main definitions, specifically including:

- Ring / Subring
- Types of rings: commutative, with identity, integral domain, field, polynomial (R[x]),
- Inverses / Zero Divisors
- Homomorphism / Isomorphism
- Divides (for polynomials)
- GCD (for polynomials)
- Irreducible polynomials ~~/ roots of polynomials~~

Theorems/Corollaries/Lemmas
Be sure to know all of the main Theorems and Corollaries, specifically including:

- Theorem 3.2 or Theorem 3.6 (sometimes called the Subring Theorem)
- Theorem 3.5
- Theorem 3.12
- Properties of subrings (theorems 3.3, 3.4, 3.7, 3.8, 3.10, 3.13)
- Theorems 3.9 and 3.10 (be able to give examples)
- The Division Algorithm for Polynomials (Theorem 4.4)
- Theorem 4.5
- Theorem 4.10
- Corollary 4.12
- ~~The Remainder Theorem (Theorem 4.14)~~
- ~~The Factor Theorem (Theorem 4.15)~~
- ~~Properties of polynomials (corollaries 4.16, 4.17, 4.18)~~

Know the proofs of:
Theorems:

- Theorem 3.5
- Theorem 3.12
- Corollary 3.13
- Theorem 4.2
- Corollary 4.3

Homework questions

Know how to use/compute:

- Determine whether a set is a subring (or a ring)
- Determine whether two rings are isomorphic
- Determine whether a function is a homophism
- The Division Algorithm for polynomials
- The Euclidean Algorithm for polynomials

Format of the test
Will be the same as that of Test 1, including a list of important Theorems at the end.

[1] While this should be a complete list of anything that might be on the test and more, I reserve the right to include anything that we have talked about in class. Be aware you may also need to use info from previous chapters.