MA661

Sathaye

References for class discussions from Zariski Book

Note that Chapters I to V are in volume 1 and VI to VII are in volume 2. Both files are searchable. My references will be generally x.y where x is the chapter and y is the section.

- 1. Basic field theory is in Chapter 2. I suggest browsing through the first 4 sections. You probably know it all. Do ask if something looks new or difficult.
- 2. I expect to start introducing material from sections 5 onwards.
- 3. The prime, primary ideals 3.8, 3.9. Browse through 3.10, 3.11. We will pick up parts of these later.
- 4. Browse through beginning of Chapter 4 (Noetherian rings). We will find useful material in 4.2, 4.3.

We have discussed parts of 4.5, 4.6, 4.7; and done some problems based on them. However, many interesting details are left undiscovered, meant for further understanding.

- 5. I recommend browsing through the rest of chapter 4, trying to concentrate on statements and examples. There is a lot of material here and I will give explicit references for topics I pick up.
- 6. 4.15 and 4.16 have many interesting details. I invite you to browse and talk to me if you find something that interests you.
- 7. I will be using material from 5.1, 5.2, 5.3. Some of these can be avoided if you just want to do field theory, but it is a good basis for a better understanding of field theory.
- 8. Rest of Chapter 5 is full of classical beautiful theorems of Algebraic Geometry as well as Number Theory. I would like to do at least some of the examples from there.
- 9. The theory of transcendence degree is first introduced in 2.12. It is further augmented with dimension for affine domains in in 7.8.

To be continued ...