

PREP 3

Reading. (BB) Section 4.2 up through the statement of Proposition 4.2.9. Look through Section 1.1 (particularly pages 4 - 9). Look for similarities and differences in the results.

In your notes, list all vocabulary defined in the section (in particular, the words that are in boldface), with definitions.

Exercises. Work out the following problems.

The proof of Theorem 4.2.4 states that the set $I = \{a(x)f(x)+b(x)g(x) \mid a(x), b(x) \in \mathbb{F}[x]\}$ satisfies the three conditions of Theorem 4.2.2.

- (1) Check that I satisfies condition **(i)**.
- (2) Check that I satisfies condition **(ii)**.
- (3) Check that I satisfies condition **(iii)**.
- (4) Describe the set I defined above when $\mathbb{F} = \mathbb{Q}$ is the rational numbers and when $f(x) = 2x^3 - x^2 + 2x - 1$ and $g(x) = 2x^3 + 5x^2 - 5x + 1$. [That is (according to Theorem 4.2.2), I should be the polynomials that are a multiple of some $d(x)$. Find $d(x)$.]