

PRACTICE PROBLEMS FOR EXAM 2

Exam 2 is on October 22nd. It will be a closed-book exam covering Sections 3.1, 3.2, 3.3, 4.1, and 4.2 of the textbook. Only pens, pencils, and erasers will be allowed. Calculators, laptops, and phones, will not be allowed.

The proposed practice problems below are in the textbook, T. W. Hungerford, *Abstract Algebra, An Introduction*. **Third Edition**, Brooks Cole, 2012.

- (1) Review all the definitions and main results presented in the sections covered by the exam (e.g., rings, subrings, multiplicative identity, units, zero divisors, integral domains, fields, isomorphisms, homomorphisms, Theorem 3.10, degree of a polynomial, leading coefficient of a polynomial, division algorithm in $F[x]$, divisibility in $F[x]$, greatest common divisor of polynomials in $F[x]$, Euclidean algorithm in $F[x]$, where F denotes a field).
- (2) Pages 53–56: 1, 2, 3, 5, 6, 7, 8, 9, 15, 20, 25.
- (3) Page 67: 8–10, 13, 25, 32.
- (4) Pages 80–83: 1, 8, 9, 11, 13, 17, 19, 34, 35, 36.
- (5) Pages 93–95: 1, 3, 5, 6, 10, 12, 20.
- (6) Pages 99, 100: 1, 2, 5, 6, 7, 9.