

## HOMework 9

Define your terminology and explain notation. If you require a standard result, such as one of the Sylow theorems, then state it (or cite a result from your textbook) before you use it; otherwise give clear and complete proofs of your claims. The problems are of equal value, 6 points each. Partial solutions will be considered on their merits.

**Exercise 1.** Prove Theorem 3.3 in Lang's Algebra, Ch. XIX, §4.

**Exercise 2.** Solve Exercise 7 in Lang's Algebra, Ch. XIX.

**Exercise 3.** Solve Exercise 8 in Lang's Algebra, Ch. XIX.

**Exercise 4.** Solve Exercise 10 in Lang's Algebra, Ch. XIX.