

HOMEWORK 5

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. Find the Galois group.

(a) Exercise VI.1.(f) in Lang.

(b) Exercise VI.1.(k) in Lang.

(c) Exercise VI.3.(f) in Lang.

Exercise 2. Solve Exercise VI.6 in Lang.

Exercise 3. Solve Exercise VI.9 in Lang.

Exercise 4. Solve Exercise VI.18 in Lang.

Exercise 5. Solve Exercise VI.19 in Lang.

Exercise 6. Solve Exercise VI.29 in Lang.