**Problem set for 27-Feb-2025**

* 选自去年的习题课讲义, 见 参考资料/高代习题课\_强基.pdf.

**Exercise 1.1** Let . Pick such that for any . Show that

form a basis of .

**Exercise 4.1** Assume is irreducible and is a root of .

1. Prove that is a linear space over and form a basis.
2. Prove that gives a linear map on and find its matrix under .