1. (Not to hand in) Exercise 10.13.

2. Assume that the characteristic of \( k \) is not 2. Prove that the set of unipotent elements in \( \text{SL}_2 \) is isomorphic to the cone in \( \mathbb{A}^3 \) given by \( x^2 + y^2 = z^2 \). (Hint: it might be easier to first show that it is isomorphic to the variety given by \( x^2 + yz = 0 \) and then do a change of coordinates.)


4. Exercise 10.15(a)–(b) (you may use 10.14 without proof).

5. Exercise 10.16.