

MAT 551: Algebra I

Exercise Sheet 4

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Due: Monday, June 6, 2011

Exercise 16 (Version 1): Let

$$G := \left\langle \begin{pmatrix} 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \\ 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \end{pmatrix}, \begin{pmatrix} 0 & 2 & 0 & 0 \\ 4 & 0 & 0 & 0 \\ 0 & 0 & 3 & 1 \\ 0 & 0 & 2 & 1 \end{pmatrix} \right\rangle < \mathrm{GL}(4, 5),$$

where the integers $0, \dots, 4$ stand for the respective elements of \mathbb{F}_5 .

Find out about the group G as much as you can. You will hand in your written answers on June 6. Further you will give a short (about 5 minute) talk about your findings on June 8 and answer a few questions on them at the blackboard. It is allowed to use a computer algebra system such as **GAP**. (Credits: unspecified, depends on what you do and how you present it.)