

**EXAM FOR “LINEAR ALGEBRA 4” (6LAG4)
SUMMER SEMESTER 2023/2024**

QUESTIONS SET NO. 3

1. Give the definition of the affine extension of a group. Illustrate this notion by examples. Does every group have an affine extension?

2. Does there exist:

1) an affine space

2) an affine Euclidean space

(A, V) such that its “affine part” A contains exactly:

a) 5 points?

b) 2024 points?

3. In the Euclidean affine space \mathbb{R}^3 , find the distance between the point $(0, 0, 0)$ and the affine subspace $\{(2\lambda + \mu, 3 + 2\lambda + 2\mu, 4 + 3\lambda + 2\mu) \mid \lambda, \mu \in \mathbb{R}\}$.