

Algebra I – autumn 2024 – Homework 1

1. Prove that

$$M = \left\{ \begin{pmatrix} a & b \\ 0 & c \end{pmatrix}; a, b, c \in \mathbb{R} \right\}$$

is a submonoid of the monoid $(Mat(\mathbb{R})_{2 \times 2}, \cdot)$.

2. Find all idempotent elements of the monoid (M, \cdot) .