Name:

## Linear Algebra II - Quiz 1

All the solutions should be properly justified and explained. Clarity of the presentation will also be rewarded.

The maximal number of points awarded is 10 .
We consider the set $V$ of $2 \times 2$ matrices $S$ satisfying

$$
\left[\begin{array}{ll}
1 & 0 \\
0 & 0
\end{array}\right] S=S\left[\begin{array}{ll}
1 & 0 \\
0 & 0
\end{array}\right]
$$

1. Prove that $V$ is a subspace of $M_{2}(\mathbb{R})$.
2. Determine a basis of $V$.
