## MATH 332 : Addendum to HW \#5

Addendum Problem \#1. For the following set with given operations, determine whether or not it is a vector space. If it is not a vector space, identify the axioms that fail.

$$
V=\left\{\left[\begin{array}{cc}
a & a+b \\
a+b & a
\end{array}\right]: a, b \in \mathbb{R}\right\}
$$

with standard matrix operations of addition and scalar multiplication.

Addendum Problem \#2. We have seen that it is possible to have a vector space with exactly one vector in it (example 1 in section 4.1). Is it possible to have a vector space with exactly two vectors in it? If yes, then give an example of such a vector space. If no, give reasons why no such vector space is possible (your reasons should work for any possible vector space, not just a specific example).

