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.

$$V = \left\{ \begin{bmatrix} a & a+b \\ a+b & a \end{bmatrix} : a, b \in \mathbb{R} \right\}$$

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).