Exercise 1.1.2. Consider the set of all entities of the form (a, b, c) where the entries are real numbers. Addition and scalar multiplication are defined as follows:

$$(a, b, c) + (d, e, f) = (a+d, b+e, c+f)$$

$$\alpha(a, b, c) = (\alpha a, \alpha b, \alpha c).$$

Write down the null vector and inverse of (a, b, c). Show that vectors of the form $(a, b, 1)$ do not form a vector space.