

**Question 1.** *How do the “span” and “basis” of a subspace differ?*

*Solution.* The term “span of subspace” is not used. There is a notion of “span of a subset”. It is the subspace of all linear combinations of elements of the set. Now we see that the span of a subspace  $V$  is the same subspace  $V$ , that is why it is not interested to consider the span of a subspace.

At the same time a basis of the subspace  $V$  is a linearly independent subset of  $V$  which spans  $V$ . It is strictly less than  $V$ , at least because it cannot contain zero.

□