

## More Vectors

Let  $\vec{v}_1 = (1, 1, 0)$  and  $\vec{v}_2 = (1, 0, 1)$ .

1. Compute the following

(a)  $\vec{v}_1 + \vec{v}_2$

(b)  $3\vec{v}_1$

(c)  $2\vec{v}_1 - 3\vec{v}_2$

2. Consider the set  $V = \{c_1\vec{v}_1 + c_2\vec{v}_2 \mid c_1, c_2 \in \mathbb{R}\}$ .

(a) Is  $V$  a vector space?

(b) Geometrically, how would you describe this set?

(c) Can you find a vector  $\vec{w} \in \mathbb{R}^3$  that is not in  $V$ ?

Which of the following sets of vectors are linearly independent?

1.  $(1, 0, 0), (0, 1, 0), (0, 0, 1)$

2.  $(1, 1), (1, 2)$

3.  $(1, 1), (1, 2), (1, 3)$