

WORKSHEET 10/12/22
MATH 2331, FALL 2022

In these problems, $\vec{v}_1 = (1, 1, 1)$, $\vec{v}_2 = (1, 2, 3)$, and $V = \text{Span}(\vec{v}_1, \vec{v}_2)$.

- (1) Are \vec{v}_1 and \vec{v}_2 linearly independent? Don't work too hard!
- (2) Find a basis for V . Don't work too hard!
- (3) Is the vector $\vec{x} = (5, 7, 9)$ contained in V ?
- (4) If your answer to #3 was "yes," write \vec{x} as a linear combination of the basis vectors you found in #2.
- (5) How many different answers to #4 could there be?
- (6) What is the dimension of V ?
- (7) Describe the subspace V geometrically.
- (8) Draw a schematic picture of V , including your basis vectors from #2.
- (9) Add the vector \vec{x} to your picture from #8.