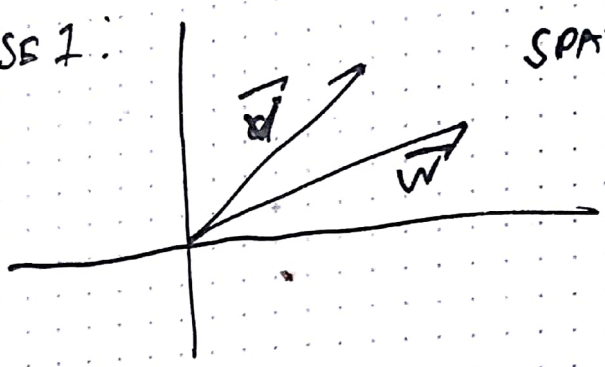
EIGENVECTORS & EIGENDECOMPOSITION

LINEAR ~~INDEPENDANCE~~ COMBINATIONS & SPAN

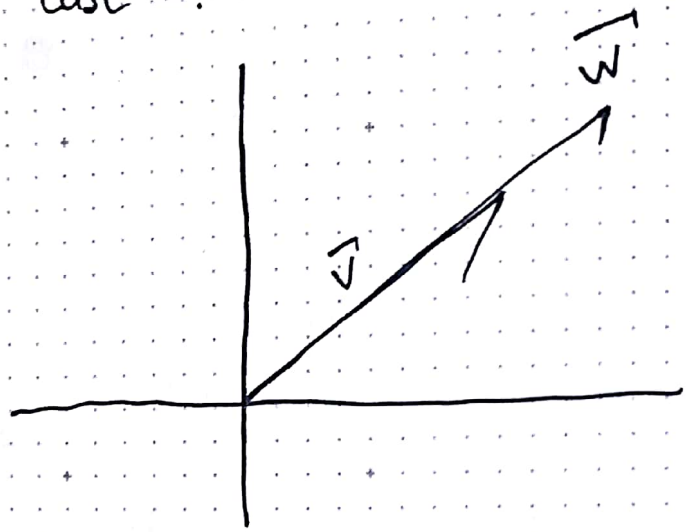
SPAN: ~~A~~ SET OF ALL VECTORS REACHABLE from a linear combination of two vectors $a\vec{v} + b\vec{w}$

Case 1:

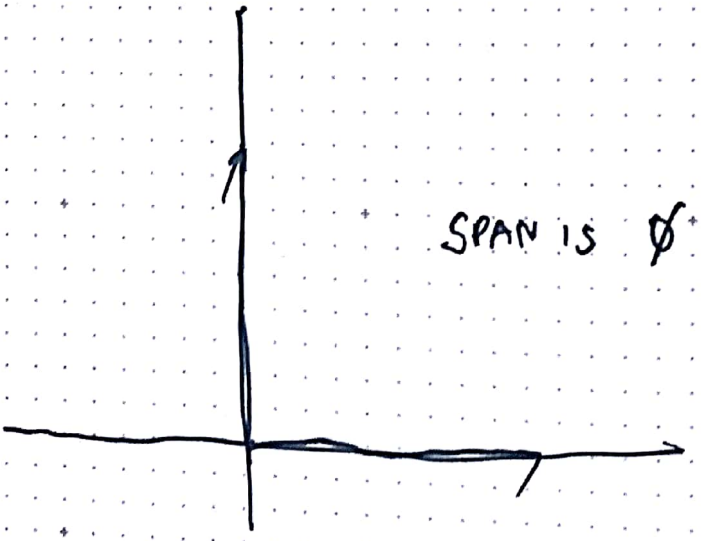


SPAN is all vectors in 2D space

Case 2:



SPAN is all vectors on Line



SPAN IS $\emptyset$

LINEAR DEPENDENCE & INDEPENDENCE

When you have multiple vectors and one vector is in the span of another vector, when you can remove a vector from a set and span is the same

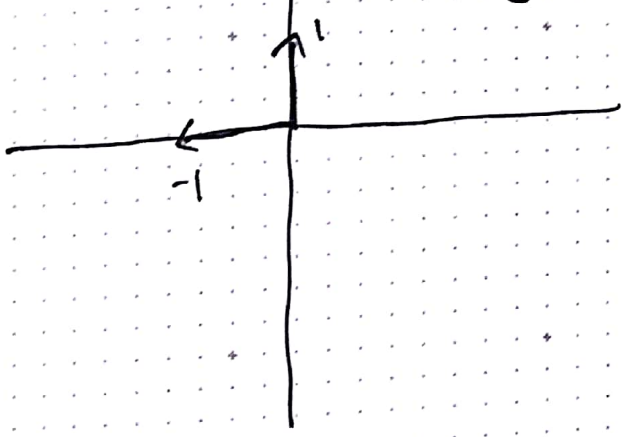
LINEAR INDEPENDENCE is opposite of above

LINEAR TRANSFORMATIONS

Modifying a vector given a transformation matrix

E.g.

Given $\begin{bmatrix} 0 & 0 \\ 1 & -1 \end{bmatrix} \begin{bmatrix} x \\ y \end{bmatrix}$



$\begin{bmatrix} x \\ y \end{bmatrix}$ = any vector and multiplying by transform matrix tells you what happens to a vector after a 90° rotation

LINEAR Transformations let you move around space