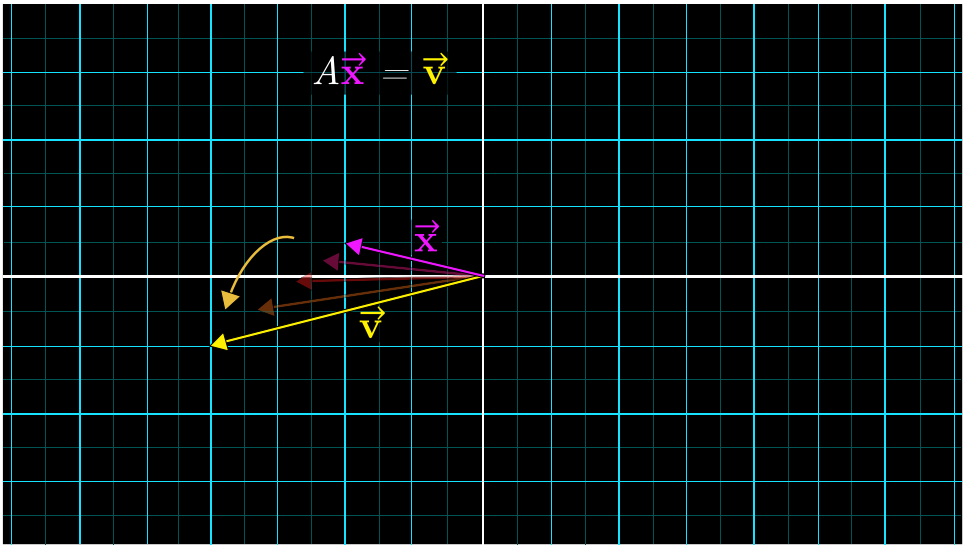
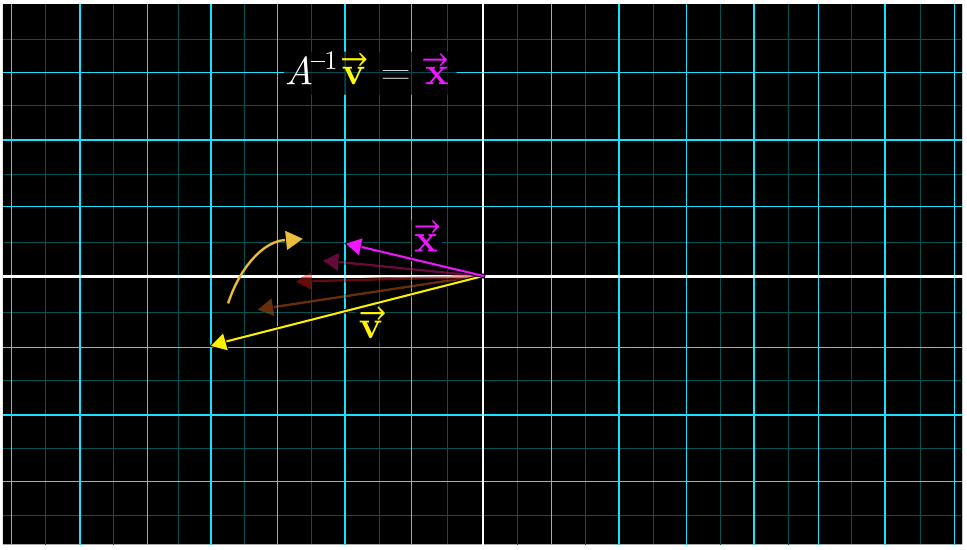
Inverse matrices

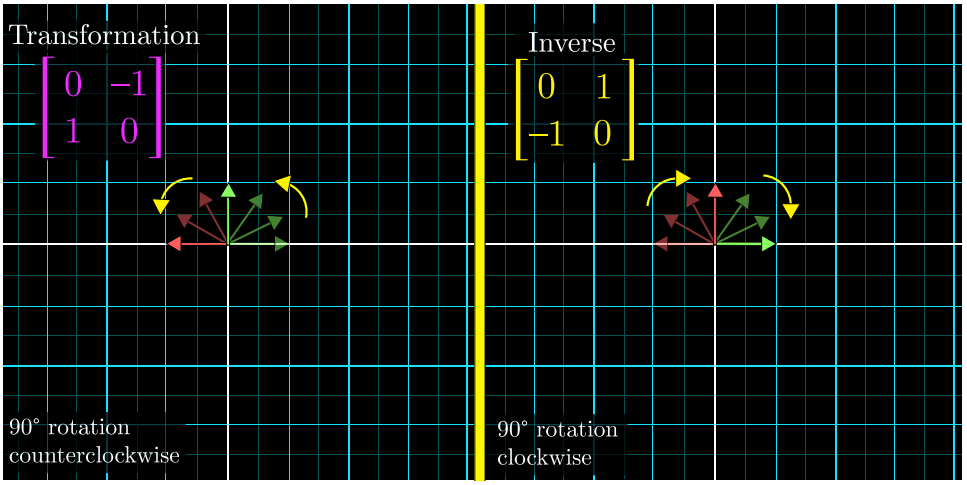
The matrix *A corresponds to some linear transformation, so solving* A **x** = **v** means we're looking for a vector **x** which, after applying that transformation, lands on **v**



I want to find the original vector, just multiply the vector V to the inverse of matrix A



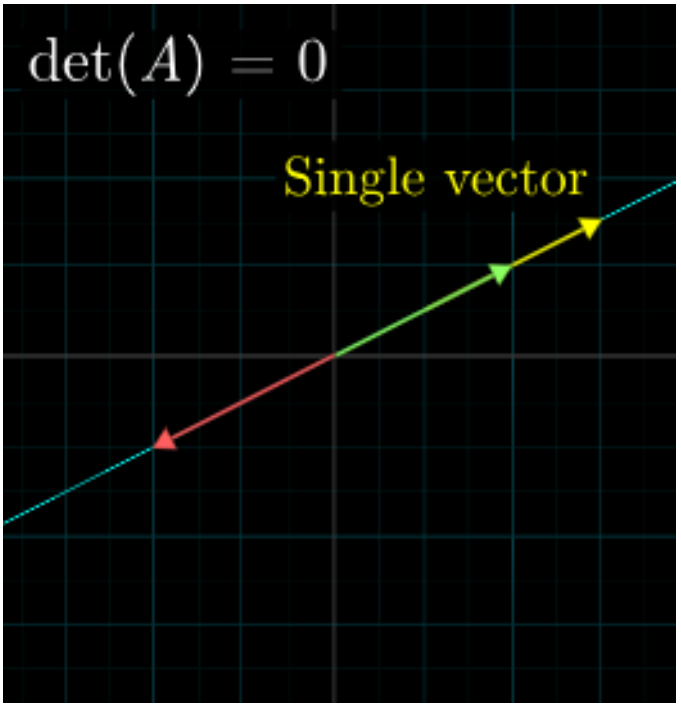
Example of transformation and inverse



Irreversibility

when the determinant *is* zero, and the transformation associated with the system of equations squishes space into a smaller dimension, there is no inverse.

When the columns of this matrix are linearly dependent



It’s still possible that a solution exists even when there is no inverse, it’s just that when your transformation squishes space onto, say, a line, you have to be lucky enough to have the vector V live somewhere on that line.