

## 1 | See Before: homogeneous equations

## 2 | Homogeneous systems of linear equations with more variables than equations has nonzero solutions (Axler3.26)

### 2.1 | Intuition

If you have more variables than equations, then some variables won't be restrained by the equations.

## 3 | Inhomogeneous systems of linear equations with more equations than variables have no solution for some choice of constant terms

### 3.1 | Intuition

If you have more equations than variables, then some choice of constant terms (some set of equations) will be too constraining.

## 4 | methodology

Basically turn it into a linear map and then abuse the injective/surjective theorems