Week 1

find the determinant of:

$$\begin{bmatrix} 1 & 1 & 1 \\ 1 & 1 & 2 \\ 0 & 0 & -1 \end{bmatrix}$$

$= (-1+0+0) - (0+0-1) = 0$

Singular

$$\begin{bmatrix} 1 & 1 & 1 \\ 0 & 2 & 2 \\ 0 & 0 & 3 \end{bmatrix}$$

$= (6+0+0) - (0+0+0) = 6$

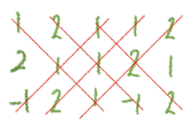
Non Singular

$$\begin{bmatrix} 1 & 2 & 5 \\ 0 & 3 & -2 \\ 2 & 4 & 10 \end{bmatrix}$$

$= (30-8+0) - (30-8+0) = 0$

Singular

$$\begin{bmatrix} 1 & 2 & 1 \\ 2 & 1 & 1 \\ -1 & 2 & 1 \end{bmatrix}$$



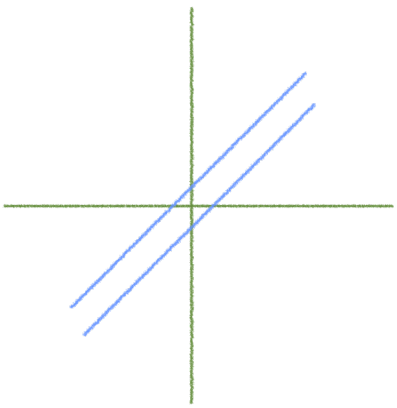
$= (1-2+4) - (-1+2+4) = -2$

Non Singular

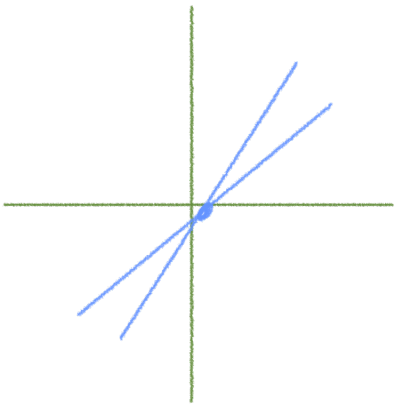
$$\begin{bmatrix} 1 & 2 & 3 \\ 0 & 2 & 2 \\ 1 & 4 & 5 \end{bmatrix}$$

$= (10 + 4 + 0) - (6 + 8 + 0) = 0$

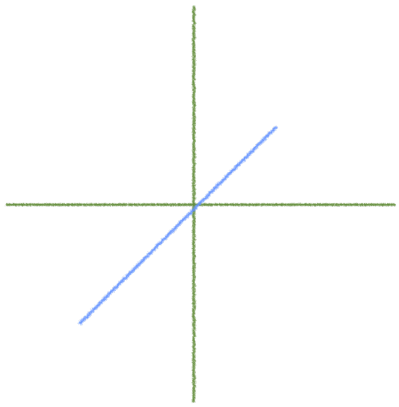
Singular



no Solution



one Solution



infinte number of Solution

Non Singular : has unique Solution

determinate $\neq 0$