Linear Algebra:

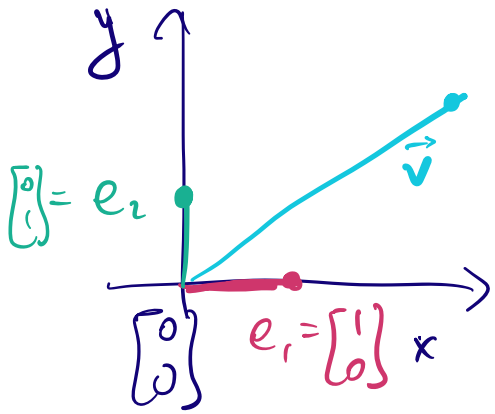
$$[x_1, x_2 \dots x_N]^T = \begin{bmatrix} x_1 \\ x_2 \\ \vdots \\ x_N \end{bmatrix}$$

Standard unit vector:

$$e_1 = \begin{bmatrix} 1 \\ 0 \\ 0 \end{bmatrix}$$

$$e_2 = \begin{bmatrix} 0 \\ 1 \\ 0 \end{bmatrix}$$ ← 2nd element is non-zero

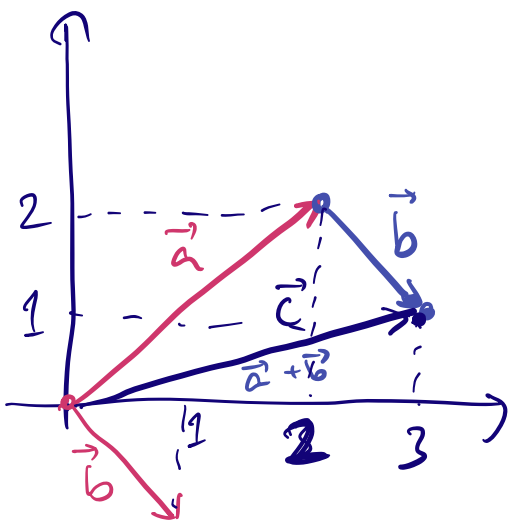
$$e_1 = \begin{bmatrix} 1 \\ 0 \\ 0 \\ 0 \end{bmatrix}$$ ← 1st element is non-zero



$$e_1 = \begin{bmatrix}1\\0\end{bmatrix} \qquad e_2 = \begin{bmatrix}0\\1\end{bmatrix}$$

$$\vec{v} = \begin{bmatrix}3\\2\end{bmatrix}$$

$$v = 3 \cdot e_1 + 2 \cdot e_2$$



$$a = \begin{bmatrix}2\\3\end{bmatrix}$$

$$b = \begin{bmatrix}1\\-2\end{bmatrix}$$

$$a + b = \begin{bmatrix}2+1\\3+(-2)\end{bmatrix} = \begin{bmatrix}3\\1\end{bmatrix}$$

$$\vec{c} = \vec{a} + \vec{b}$$