2D EXAMPLE

- let $B = \left\{ \begin{bmatrix} 1 \\ 0 \end{bmatrix}, \begin{bmatrix} 0 \\ 1 \end{bmatrix} \right\}$ be the standard basis in $\mathbb{R}^2$

- let $B' = \left\{ \begin{bmatrix} 3 \\ 1 \end{bmatrix}, \begin{bmatrix} -2 \\ 1 \end{bmatrix} \right\}$ be an alternative basis

THE CHANGE OF COORDINATE MATRIX FROM B' TO B IS:

$$P = \begin{bmatrix} 3 & -2 \\ 1 & 1 \end{bmatrix}$$

SO THAT: $[v]_B = P \cdot [v]_{B'}$ and $[v]_{B'} = P^{-1} \cdot [v]_B$

NOTE: For arbitrary B and B', P's columns must be the B' vectors written in terms of the B ones (straightforward here)