

exemple 52:

$$1/A = \left\{ a_1 = \begin{pmatrix} 2 \\ 0 \end{pmatrix}; a_2 = \begin{pmatrix} 1 \\ 2 \end{pmatrix} \right\}, \quad B = \left\{ b_1 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}; b_2 = \begin{pmatrix} 2 \\ 1 \end{pmatrix} \right\}$$

sont 2 bases de  $\mathbb{R}^2$ .

$$\text{On cherche } P_{A \rightarrow B}^{-1} = P_{B \rightarrow A}$$

$$\bullet \begin{pmatrix} 2 \\ 0 \end{pmatrix} = \alpha \begin{pmatrix} 0 \\ 1 \end{pmatrix} + \beta \begin{pmatrix} 2 \\ 1 \end{pmatrix} \Leftrightarrow \begin{cases} 2 = 2\beta \Leftrightarrow \beta = 1 \\ 0 = \alpha + \beta \Rightarrow \alpha = -\beta = -1 \end{cases}$$

$$\text{D'où } \begin{pmatrix} 2 \\ 0 \end{pmatrix} = \begin{pmatrix} -1 \\ 1 \end{pmatrix}_B$$

$$\text{De même, } \begin{pmatrix} 1 \\ 2 \end{pmatrix} = \alpha \begin{pmatrix} 0 \\ 1 \end{pmatrix} + \beta \begin{pmatrix} 2 \\ 1 \end{pmatrix} \Leftrightarrow \begin{cases} 1 = 2\beta \Leftrightarrow \beta = \frac{1}{2} \\ 2 = \alpha + \beta \Leftrightarrow \alpha = 2 - \beta \end{cases}$$

$$\Leftrightarrow \alpha = 2 - \frac{1}{2} \Leftrightarrow \alpha = \frac{3}{2}$$

$$\text{d'où } \begin{pmatrix} 1 \\ 2 \end{pmatrix} = \begin{pmatrix} 3/2 \\ 1 \end{pmatrix}_B$$