More Examples

Ex:

$$v = \begin{bmatrix} 5 \\ -1 \\ -2 \end{bmatrix} = 5\begin{bmatrix} 1 \\ 0 \\ 0 \end{bmatrix} - 1\begin{bmatrix} 0 \\ 1 \\ 0 \end{bmatrix} - 2\begin{bmatrix} 0 \\ 0 \\ 1 \end{bmatrix} = 5e_1 - 1e_2 - 2e_3$$

$$\Longrightarrow [v]_E = \begin{bmatrix} 5 \\ -1 \\ -2 \end{bmatrix}$$

$$v = \begin{bmatrix} 5 \\ -1 \\ -2 \end{bmatrix} = 3\begin{bmatrix} 1 \\ 1 \\ 0 \end{bmatrix} + 2\begin{bmatrix} 1 \\ 0 \\ 1 \end{bmatrix} - 4\begin{bmatrix} 0 \\ 0 \\ 1 \end{bmatrix} = 3f_1 + 2f_2 - 4f_3$$

$$\Longrightarrow [v]_F = \begin{bmatrix} 3 \\ 2 \\ -4 \end{bmatrix}$$

($\uparrow$ how do you find these numbers? $\uparrow$)

where $F = (f_1, f_2, f_3)$