Thứ
Ngày . . No.

Bgiải.

C có $v_1 = \begin{bmatrix} 1 \\ 0 \\ 0 \end{bmatrix}$ $v_2 = \begin{bmatrix} 0 \\ 1 \\ 0 \end{bmatrix}$ $v_3 = \begin{bmatrix} 0 \\ 0 \\ 1 \end{bmatrix}$

B có $u_1 = \begin{bmatrix} 1 \\ 0 \\ 1 \end{bmatrix}$ $u_2 = \begin{bmatrix} 1 \\ 1 \\ 0 \end{bmatrix}$ $u_3 = \begin{bmatrix} 2 \\ 2 \\ -3 \end{bmatrix}$

$f(v_1) = \begin{bmatrix} 1 \\ 3 \\ -5 \end{bmatrix}$ $f(v_2) = \begin{bmatrix} -1 \\ -2 \\ 4 \end{bmatrix}$ $f(v_3) = \begin{bmatrix} 0 \\ 0 \\ 4 \end{bmatrix}$

Xét ma trận.

$$\left[\begin{array}{ccc|ccc} 1 & 1 & 2 & 1 & -1 & 0 \\ 0 & 1 & 2 & 3 & -2 & 0 \\ 1 & 0 & -3 & -5 & 4 & 4 \end{array}\right]$$

$$\Leftrightarrow \left[\begin{array}{ccc|ccc} 1 & 1 & 2 & 1 & -1 & 0 \\ 0 & 1 & 2 & 3 & -2 & 0 \\ 0 & 1 & 5 & 6 & -5 & -4 \end{array}\right] \Leftrightarrow \left[\begin{array}{ccc|ccc} 1 & 0 & 0 & -2 & 1 & 0 \\ 0 & 1 & 2 & 3 & -2 & 0 \\ 0 & 0 & 3 & 3 & -3 & -4 \end{array}\right]$$

$$\Leftrightarrow \left[\begin{array}{ccc|ccc} 1 & 0 & 0 & -2 & 1 & 0 \\ 0 & 1 & 2 & 3 & -2 & 0 \\ 0 & 0 & 1 & 1 & -1 & -\frac{4}{3} \end{array}\right] \Leftrightarrow \left[\begin{array}{ccc|ccc} 1 & 0 & 0 & -2 & 1 & 0 \\ 0 & 1 & 0 & 1 & 0 & \frac{8}{3} \\ 0 & 0 & 1 & 1 & -1 & -\frac{4}{3} \end{array}\right]$$

Vậy ma trận của f ứ cặp cơ sở C, B là $\begin{bmatrix} 2 & 1 & 0 \\ 1 & 0 & \frac{8}{3} \\ 1 & -1 & -\frac{4}{3} \end{bmatrix}$