

9.1

$$\begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix} \begin{bmatrix} y_1 \\ y_2 \\ y_3 \\ y_4 \end{bmatrix} = \begin{bmatrix} f_1 \\ f_2 \\ f_3 \\ f_4 \end{bmatrix}$$

$$y_1 = f_1$$

$$k_2 y_1 + y_2 = f_2$$

$$y_2 = f_2 - k_2 y_1$$

$$k_3 y_2 + y_3 = f_3$$

⋮

$$k_4 y_3 + y_4 = f_4$$

$\left. \begin{array}{l} n=4 \\ 3 \text{ sub's,} \\ 3 \text{ mult's,} \end{array} \right\}$

$\left. \begin{array}{l} n-1 \text{ sub's} \\ n-1 \text{ mult's} \end{array} \right\} \text{ FOR FORWARD ELEM., THE OPERATION COUNT IS } O(n)$