Method 1

$$\begin{pmatrix}\text{Optimal values}\\ \text{of } \textit{dual} \text{ variables}\end{pmatrix} = \begin{pmatrix}\text{Row vector of}\\ \text{original objective coefficients}\\ \text{of optimal } \textit{primal} \text{ basic variables}\end{pmatrix} \times \begin{pmatrix}\text{Optimal } \textit{primal}\\ \text{inverse}\end{pmatrix}$$

The elements of the row vector of the original primal objective coefficients must appear in the same order in which the basic variables are listed in the *Basic*-column of the simplex tableau. This point is explained in Example 4.2-1.

Method 2

The optimal dual solution can be determined by solving the following equations:

$$\begin{pmatrix}\text{Optimal } \textit{primal}\ z\text{-coefficient}\\ \text{(reduced cost) of any variable } x_j\end{pmatrix} = \begin{pmatrix}\text{Left-hand side of the}\\ j\text{th } \textit{dual} \text{ constraint}\end{pmatrix} - \begin{pmatrix}\text{Right-hand side of the}\\ j\text{th } \textit{dual} \text{ constraint}\end{pmatrix}$$

1. Constraint columns (left- and right-hand sides)
2. Objective z-row

Constraint Column Computations. At any simplex iteration, a left- or a right-hand side column is computed as follows:

$$\begin{pmatrix}\text{Constraint column}\\ \text{in iteration } i\end{pmatrix} = \begin{pmatrix}\text{Inverse in}\\ \text{iteration } i\end{pmatrix} \times \begin{pmatrix}\text{Original}\\ \text{constraint column}\end{pmatrix} \qquad (\textit{Formula } 1)$$

Objective z-Row Computations. At any simplex iteration, the objective equation coefficient of x_j is computed as follows:

$$\begin{pmatrix}\textit{Primal}\ z\text{-equation}\\ \text{coefficient (reduced cost)}\\ \text{of variable } x_j\end{pmatrix} = \begin{pmatrix}\text{Left-hand side}\\ \text{of corresponding}\\ \textit{dual} \text{ constraint}\end{pmatrix} - \begin{pmatrix}\text{Right-hand side}\\ \text{of corresponding}\\ \textit{dual} \text{ constraint}\end{pmatrix} \qquad (\textit{Formula } 2)$$