Note that $j^+ = 2$ since the only positive reduced cost occurs in column 2. Also observe that since $\min\{\xi_1/6, \xi_3/8\} = \xi_1/6 = 1/6$, we set $k^- = 3$, $K = (2, 1, 5)$ and pivot along the red 6 to obtain the tableau

	x_1	x_2	ξ_1	ξ_2	ξ_3
$2/3$	0	0	$-7/3$	$-5/3$	0
$x_2 = 1/6$	0	1	$1/6$	$-1/6$	0
$x_1 = 4/9$	1	0	$1/9$	$2/9$	0
$\xi_3 = 2/3$	0	0	$-4/3$	$-2/3$	1

.

Since the reduced costs are either zero or negative the simplex algorithm terminates, and we compute

$$z^* = (-1 \ \ -1 \ \ -1) - (-7/3 \ \ -5/3 \ 0) = (4/3 \ 2/3 \ \ -1),$$

$$y^+ A^4 - c_4 = (-19/42 \ 5/14 \ \ -5/42) \begin{pmatrix} 1 \\ -1 \\ 1 \end{pmatrix} + 1 = 1/14,$$

$$z^* A^4 = -(4/3 \ 2/3 \ \ -1) \begin{pmatrix} 1 \\ -1 \\ 1 \end{pmatrix} = 1/3,$$

so

$$\theta^+ = \frac{3}{14},$$

$$y^+ = (-19/42 \ 5/14 \ \ -5/42) + \frac{5}{14}(4/3 \ 2/3 \ \ -1) = (-1/6 \ 1/2 \ \ -1/3).$$

When we plug y^+ into (D), we discover that the first, second, and fourth constraints are equalities, which implies $J = \{1, 2, 4\}$. Hence the new Restricted Primal $(RP3)$ is

$$\text{Maximize} \quad -(\xi_1 + \xi_2 + \xi_3)$$

$$\text{subject to} \quad \begin{pmatrix} 3 & 4 & 1 & 1 & 0 & 0 \\ 3 & -2 & -1 & 0 & 1 & 0 \\ 6 & 4 & 1 & 0 & 0 & 1 \end{pmatrix} \begin{pmatrix} x_1 \\ x_2 \\ x_4 \\ \xi_1 \\ \xi_2 \\ \xi_3 \end{pmatrix} = \begin{pmatrix} 2 \\ 1 \\ 4 \end{pmatrix} \quad \text{and } x_1, x_2, x_4, \xi_1, \xi_2, \xi_3 \geq 0.$$

The initial tableau for $(RP3)$, with $\hat{c} = (0, 0, 0, -1, -1, -1)$, $(x_1, x_2, x_4, \xi_1, \xi_2, \xi_3) = (4/9, 1/6, 0, 0, 0, 2/3)$ and $K = (2, 1, 6)$, is obtained from the final tableau of the previous $(RP2)$ by adding a column corresponding the the variable x_4, namely

$$\widehat{A}_K^{-1} A^4 = \begin{pmatrix} 1/6 & -1/6 & 0 \\ 1/9 & 2/9 & 0 \\ -4/3 & -2/3 & 1 \end{pmatrix} \begin{pmatrix} 1 \\ -1 \\ 1 \end{pmatrix} = \begin{pmatrix} 1/3 \\ -1/9 \\ 1/3 \end{pmatrix},$$