

OR 과제 - 4

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2025-04-07

5.3-1

a

$$\bullet x_B = [x_2, x_6, x_3]$$

$$\bullet c_B = [-1, 0, 2]$$

$$\bullet c_N = [1, 0, 0]$$

$$\bullet B^{-1} = \begin{bmatrix} 1 & 3 & 0 \\ 0 & 1 & 1 \\ 1 & 2 & 0 \end{bmatrix}$$

$$\bullet N = \begin{bmatrix} 2 & 1 & 0 \\ 1 & 0 & 1 \\ 1 & 0 & 0 \end{bmatrix}$$

$$\bullet b = \begin{bmatrix} 5 \\ 3 \\ 2 \end{bmatrix}$$

$$\bullet \text{Reduced cost} = [-1, 0, 2] \begin{bmatrix} 1 & 3 & 0 \\ 0 & 1 & 1 \\ 1 & 2 & 0 \end{bmatrix} \begin{bmatrix} 2 & 1 & 0 \\ 1 & 0 & 1 \\ 1 & 0 & 0 \end{bmatrix} - [1, 0, 0] = [2, 1, 1]$$

$$\bullet \text{resouce} = \begin{bmatrix} 1 & 3 & 0 \\ 0 & 1 & 1 \\ 1 & 2 & 0 \end{bmatrix} \begin{bmatrix} 5 \\ 3 \\ 2 \end{bmatrix} = \begin{bmatrix} 14 \\ 5 \\ 11 \end{bmatrix}$$

$$\bullet NB^{-1} = \begin{bmatrix} 2 & 1 & 0 \\ 1 & 0 & 1 \\ 1 & 0 & 0 \end{bmatrix} \begin{bmatrix} 1 & 3 & 0 \\ 0 & 1 & 1 \\ 1 & 2 & 0 \end{bmatrix} = \begin{bmatrix} 2 & 8 & 1 \\ 2 & 5 & 0 \\ 1 & 3 & 0 \end{bmatrix}$$

$$\bullet c_B B^{-1} b = [-1, 0, 2] \begin{bmatrix} 1 & 3 & 0 \\ 0 & 1 & 1 \\ 1 & 2 & 0 \end{bmatrix} \begin{bmatrix} 5 \\ 3 \\ 2 \end{bmatrix} = 5$$

위의 정보들을 바탕으로 표를 채우면 다음과 같다.

	Z	x_1	x_2	x_3	x_4	x_5	x_6	RHS	
	1	2	0	0	1	1		0	5
x_2	0	2	1	0	8	1	0	14	
x_6	0	2	0	0	5	0	1	5	
x_3	0	1	0	1	3	0	0	11	

b

5.3-2

a

b

5.3-3

5.3-6