



System of Equations:

$$\begin{cases} \text{Feed} - x_1 - x_3 = 0 \\ x_1 - x_2 - \text{Discard} = 0 \\ x_2 + x_3 - \text{Output} = 0 \end{cases}$$

Matrix form: $\mathbf{Ax} = \mathbf{b}$

$$\begin{bmatrix} -1 & 0 & -1 \\ 1 & -1 & 0 \\ 0 & 1 & 1 \end{bmatrix} \begin{bmatrix} x_1 \\ x_2 \\ x_3 \end{bmatrix} = \begin{bmatrix} -\text{Feed} \\ \text{Discard} \\ \text{Output} \end{bmatrix}$$