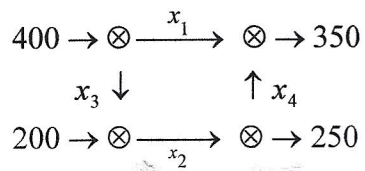


- 7) Set up a system of equations that would allow you to determine the variables in the following flow of traffic diagram. You do **not** need to solve this system.



$$\begin{aligned}
 x_1 + x_3 &= 400 \\
 x_3 + 200 &= x_2 \\
 x_1 + x_4 &= 350 \\
 x_2 &= 250 + x_4
 \end{aligned}$$

$$\begin{aligned}
 x_1 + x_3 &= 400 \\
 x_2 - x_3 &= 200 \\
 x_1 + x_4 &= 350 \\
 x_2 - x_4 &= 250
 \end{aligned}$$

- 8) Find the inverse of  $\begin{bmatrix} 1 & 1 & 1 \\ 0 & 2 & 3 \\ 4 & 3 & 3 \end{bmatrix}$

$$\begin{aligned}
 &\left[ \begin{array}{ccc|ccc} 1 & 1 & 1 & 1 & 0 & 0 \\ 0 & 2 & 3 & 0 & 1 & 0 \\ 4 & 3 & 3 & 0 & 0 & 1 \end{array} \right] \rightarrow \left[ \begin{array}{ccc|ccc} 1 & 1 & 1 & 1 & 0 & 0 \\ 0 & 2 & 3 & 0 & 1 & 0 \\ 0 & -1 & -1 & -4 & 0 & 1 \end{array} \right] \rightarrow \left[ \begin{array}{ccc|ccc} 1 & 1 & 1 & 1 & 0 & 0 \\ 0 & 1 & 1 & 4 & 0 & -1 \\ 0 & 2 & 3 & 0 & 1 & 0 \end{array} \right] \\
 &\rightarrow \left[ \begin{array}{ccc|ccc} 1 & 0 & 0 & -3 & 0 & 1 \\ 0 & 1 & 1 & 4 & 0 & -1 \\ 0 & 0 & 1 & -8 & 1 & 2 \end{array} \right] \rightarrow \left[ \begin{array}{ccc|ccc} 1 & 0 & 0 & -3 & 0 & 1 \\ 0 & 1 & 0 & 12 & -1 & -3 \\ 0 & 0 & 1 & -8 & 1 & 2 \end{array} \right] \\
 &A^{-1} = \begin{bmatrix} -3 & 0 & 1 \\ 12 & -1 & -3 \\ -8 & 1 & 2 \end{bmatrix}
 \end{aligned}$$