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In[27]:= n = 3;

In[28]:= a = {{5, 2, 1}, {3, 7, 4}, {1, 1, 9}};

In[29]:= MatrixForm [a]
x = {0, 0, 0}
y = {0, 0, 0}
b = {10, 21, 12}
For[k = 1, k ≤ 25, k++,
For[i = 1, i ≤ n, i++,
y[[i]] =
(b[[i]] - Sum[a[[i, j]] * x[[j]], {j, 1, i - 1}] - Sum[a[[i, j]] * x[[j]], {j, i + 1, n}]) / a[[i, i]]];
For[m = 1, m ≤ n, m++, x[[m]] = N[y[[m]]]]]
For[p = 1, p ≤ n, p++, Print ["x[" , p, "]=", x[[p]]]]

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Out[29]//MatrixForm=

$$\begin{pmatrix} 5 & 2 & 1 \\ 3 & 7 & 4 \\ 1 & 1 & 9 \end{pmatrix}$$

Out[30]= {0, 0, 0}

Out[31]= {0, 0, 0}

Out[32]= {10, 21, 12}

x[1]=1.

x[2]=2.

x[3]=1.