In[27]:=
```
n = 3;
```

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

In[54]:=
```
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]] * y[[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]]]
```

Out[54]//MatrixForm=

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

Out[55]= {0, 0, 0}

Out[56]= {0, 0, 0}

Out[57]= {10, 21, 12}

```
x[1]=1.
x[2]=2.
x[3]=1.
```