In[123]:=

```
A = {{4.0, 1.0, 2.0}, {-3.0, 5.0, 1.0}, {1.0, 1.0, 3.0}};
d = {{4.0, 0, 0}, {0, 5.0, 0}, {0, 0, 3.0}};
u = {{0, 1.0, 2.0}, {0, 0, 1.0}, {0, 0, 1.0 }};
l = {{0, 0, 0}, {-3.0, 0, 0}, {1.0, 1.0, 0}};
b = Transpose[{{4.0, 7.0, 3.0}}];
  x[1] = Transpose[{{0, 0, 0}}];
 Do[x[n + 1] = LinearSolve[(l + d), -u.x[n] + b];
 Print[x^n, "=", MatrixForm[x[n]]], {n, 1, 15}]
```

$$x=\begin{pmatrix}0\\0\\0\end{pmatrix}$$

$$x^{2}=\begin{pmatrix}1.\\2.\\-3.70074\times10^{-17}\end{pmatrix}$$

$$x^{3}=\begin{pmatrix}0.5\\1.7\\0.266667\end{pmatrix}$$

$$x^{4}=\begin{pmatrix}0.441667\\1.61167\\0.226667\end{pmatrix}$$

$$x^{5}=\begin{pmatrix}0.48375\\1.64492\\0.214889\end{pmatrix}$$

$$x^{6}=\begin{pmatrix}0.481326\\1.64582\\0.219322\end{pmatrix}$$

$$x^{7}=\begin{pmatrix}0.478884\\1.64347\\0.219442\end{pmatrix}$$

$$x^{8}=\begin{pmatrix}0.479412\\1.64376\\0.219129\end{pmatrix}$$

$$x^{9}=\begin{pmatrix}0.479496\\1.64387\\0.219168\end{pmatrix}$$

$$x^{10}=\begin{pmatrix}0.479448\\1.64384\\0.219183\end{pmatrix}$$

$$x^{11}=\begin{pmatrix}0.47945\\1.64383\\0.219178\end{pmatrix}$$

$$x^{12}=\begin{pmatrix}0.479453\\1.64384\\0.219178\end{pmatrix}$$

$$x^{13}=\begin{pmatrix}0.479452\\1.64384\\0.219178\end{pmatrix}$$

$$x^{14}=\begin{pmatrix}0.479452\\1.64384\\0.219178\end{pmatrix}$$

$$x^{15}=\begin{pmatrix}0.479452\\1.64384\\0.219178\end{pmatrix}$$