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Exercício: Eliminação de Gauss e pivoteamento

$$\left[\begin{array}{cccc|c} 1 & 2 & 0 & 1 & -1 \\ 0 & 10 & -1 & 0 & 0 \\ -2 & 1 & 0 & 0 & 1 \\ 3 & 0 & 1 & 0 & 0 \end{array} \right]$$

$$x_2 \quad L \rightarrow \left[\begin{array}{cccc|c} 1 & 0 & 0 & 0 & \\ 0 & 1 & 0 & 0 & \\ -2/3 & 1/10 & 1 & 0 & \\ 1/3 & 2/10 & -4/23 & 1 & \end{array} \right]$$

$$U \rightarrow \left[\begin{array}{cccc|c} 1 & 2 & 0 & 1 & -1 \\ 0 & 10 & -1 & 0 & 0 \\ -2 & 1 & 0 & 0 & 1 \\ 3 & 0 & 1 & 0 & 0 \end{array} \right] \rightarrow \left[\begin{array}{cccc|c} 3 & 0 & 1 & 0 & 0 \\ 0 & 10 & -1 & 0 & 0 \\ -2 & 1 & 0 & 0 & 1 \\ 1 & 2 & 0 & 1 & -1 \end{array} \right] \rightarrow$$

$$\rightarrow \left[\begin{array}{cccc|c} 3 & 0 & 1 & 0 & 0 \\ 0 & 10 & -1 & 0 & 0 \\ 0 & 1 & 2/3 & 0 & 1 \\ 0 & 2 & -1/3 & 1 & -1 \end{array} \right] \rightarrow \left[\begin{array}{cccc|c} 3 & 0 & 1 & 0 & 0 \\ 0 & 10 & -1 & 0 & 0 \\ 0 & 0 & 23/30 & 0 & 1 \\ 0 & 0 & -4/30 & 1 & -1 \end{array} \right] \rightarrow$$

$$\rightarrow \left[\begin{array}{cccc|c} 3 & 0 & 1 & 0 & 0 \\ 0 & 10 & -1 & 0 & 0 \\ 0 & 0 & 23/30 & 0 & 1 \\ 0 & 0 & 0 & 1 & -19/23 \end{array} \right]$$

$$\therefore L \rightarrow \left[\begin{array}{cccc|c} 1 & 0 & 0 & 0 & \\ 0 & 1 & 0 & 0 & \\ -2/3 & 1/10 & 1 & 0 & \\ 1/3 & 2/10 & -4/23 & 1 & \end{array} \right] \quad \text{e} \quad U \rightarrow \left[\begin{array}{cccc|c} 3 & 0 & 1 & 0 & \\ 0 & 10 & -1 & 0 & \\ 0 & 0 & 23/30 & 0 & \\ 0 & 0 & 0 & 1 & \end{array} \right] \text{crescente}$$