REVISÃO - 30/08/2014

(1)

a) int i, j, k, soma;

float A[3][3], B[3], L[3][3], U[3][3]; X[3]

```
FOR (i=0; i<3; i++) {

    FOR (j=0; j<3, j++) {
        SOMA = 0;
        if (i<=j) {

            FOR (K=0, K<i, K++) {
                SOMA += L[i][K] * U[K][j];
            }
            U[i][j] = A[i][j] - SOMA;
        }
        else
            FOR (k=0, K<j, K++) {
                SOMA += L[i][K] * U[K][j];
            }
            L[i][j] = (A[i][j] - SOMA) / U[j][j];
        }
    }
```

(b)

$$\begin{pmatrix} 1 & 0 & 0 \\ L_{21} & 1 & 0 \\ L_{31} & L_{32} & 1 \end{pmatrix} \begin{pmatrix} U_{11} & U_{12} & U_{13} \\ 0 & U_{22} & U_{23} \\ 0 & 0 & U_{33} \end{pmatrix} = \begin{pmatrix} 2 & 3 & -1 \\ 1 & 0 & 2 \\ 0 & 3 & -1 \end{pmatrix}$$

$1 \cdot U_{11} = 2 \Rightarrow U_{11} = 2$

$1 \cdot U_{12} = 3 \Rightarrow U_{12} = 3$

$1 \cdot U_{13} = -1 \Rightarrow U_{13} = -1$

$L_{21} \cdot U_{11} = 1 \Rightarrow L_{21} = \frac{1}{2}$

$L_{21} \cdot U_{12} + 1 \cdot U_{22} = 0 \Rightarrow U_{22} = \frac{1}{2} \cdot 3 = -\frac{3}{2}$

$L_{21} \cdot U_{13} + 1 \cdot U_{23} = 2 \Rightarrow U_{23} = \left(\frac{1}{2} \cdot (-1)\right) + 2 = \frac{1+4}{2} = \frac{5}{2}$