

$$3_1(a) \quad A = \begin{pmatrix} 2 & 3 & 1 \\ -4 & 1 & -1 \\ 0 & 4 & 6 \end{pmatrix}, \quad P = \begin{pmatrix} 1 \\ 2 \\ 3 \end{pmatrix}$$

$$\rightsquigarrow \begin{pmatrix} -4 & 1 & -1 \\ 2 & 3 & 1 \\ 0 & 4 & 6 \end{pmatrix}, \quad P = \begin{pmatrix} 2 \\ 1 \\ 3 \end{pmatrix}$$

$$R^{(1)} = \left(\begin{array}{ccc|cc} -4 & 1 & -1 & & \\ -\frac{1}{2} & 3,5 & 0,5 & & \\ 0 & 4 & 6 & & \end{array} \right), \quad P = \begin{pmatrix} 2 \\ 1 \\ 3 \end{pmatrix}$$

$$R^{(1)'} = \left(\begin{array}{ccc|cc} -4 & 1 & -1 & & \\ 0 & 4 & 6 & & \\ -\frac{1}{2} & 3,5 & 0,5 & & \end{array} \right), \quad P = \begin{pmatrix} 2 \\ 3 \\ 1 \end{pmatrix}$$

$$R^{(2)} = \left(\begin{array}{ccc|cc} -4 & 1 & -1 & & \\ 0 & 4 & 6 & & \\ -0,5 & 0,875 & -4,75 & & \end{array} \right), \quad P = \begin{pmatrix} 2 \\ 3 \\ 1 \end{pmatrix}$$

$$L = \begin{pmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ -0,5 & 0,875 & 1 \end{pmatrix}, \quad U = \begin{pmatrix} -4 & 1 & -1 \\ 0 & 4 & 6 \\ 0 & 0 & -4,75 \end{pmatrix}$$