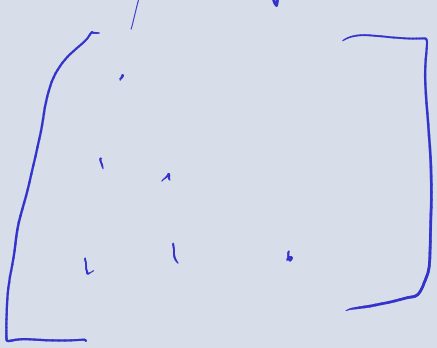
1) Треуг.



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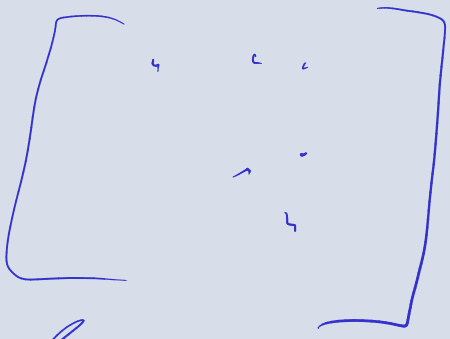

верх.

$$Ax = b$$

$$x_1 = \frac{b_1}{a_{11}}$$

2) LU – разложение

$$A = L \cdot U = L_1^{-1} L_1 A = L_{n-1}^{-1} L_2^{-1} L_2 L_1 A$$

$$= \underbrace{L_1^{-1} \dots L_n^{-1}}_{L} \cdot \underbrace{L_n \dots L_1 A}_{U}$$

$$L_i = \begin{bmatrix} 1 & & & \\ & \ddots & & \\ & & 1 & \\ & & -l_{i+1,i} & \ddots \\ & & -l_{n,i} & & 1 \end{bmatrix} \quad L_i^{-1} \begin{bmatrix} 1 & & & \\ & \ddots & & \\ & & 1 & \\ & & +l_{i+1,i} & \ddots \\ & & +l_{n,i} & & 1 \end{bmatrix}$$

$$\rho_t = k \rho_{xx}$$

$$\frac{\rho_{i+1,j} - \rho_{i,j}}{\Delta t} = k \frac{\rho_{i,j-1} - 2\rho_{i,j} + \rho_{i,j+1}}{(\Delta x)^2}$$

$$\downarrow$$

$$\frac{\rho_{i,j} - \rho_{i-1,j}}{\Delta t} = \cdots$$