

PCNY методом Гаусса

ТКМ

14.02.22

Реннико

Арсений

УБТ 2-23

$$\begin{cases} 0x_1 + 0x_2 + x_3 + 9x_4 + 12x_5 = 23 \\ 0x_1 + 0x_2 + 0x_3 + 2x_4 + 6x_5 = 18 \\ x_1 + 2x_2 + 6x_3 + 5x_4 + 8x_5 = 34 \\ 0x_1 + x_2 + 4x_3 + 7x_4 + 5x_5 = 16 \\ 7x_1 + 7x_2 + 7x_3 + 7x_4 + 8x_5 = 8 \end{cases}$$

составим матрицу

$$\left(\begin{array}{ccccc|c} 0 & 0 & 1 & 9 & 12 & 23 \\ 0 & 0 & 0 & 2 & 6 & 18 \\ 1 & 2 & 6 & 5 & 8 & 34 \\ 0 & 1 & 4 & 7 & 5 & 16 \\ 7 & 7 & 7 & 7 & 8 & 8 \end{array} \right) \sim$$

$$\sim \left(\begin{array}{ccccc|c} 0 & 0 & 1 & 9 & 12 & 23 \\ 0 & 1 & 4 & 7 & 5 & 16 \\ 1 & 2 & 6 & 5 & 8 & 34 \\ 0 & 0 & 0 & 2 & 6 & 18 \\ 7 & 7 & 7 & 7 & 8 & 8 \end{array} \right) \sim$$

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$$\sim \left(\begin{array}{ccccc|c} 0 & 0 & 1 & 9 & 12 & 23 \\ 0 & 1 & 4 & 7 & 5 & 16 \\ 1 & 2 & 6 & 5 & 8 & 34 \\ 0 & 0 & 0 & 1 & 3 & 9 \\ 0 & 0 & 0 & 0 & 1 & 1 \end{array} \right) \sim$$

$$\sim \begin{pmatrix} 1 & 2 & 6 & 5 & 8 & 34 \\ 0 & 1 & 4 & 7 & 5 & 16 \\ 0 & 0 & 1 & 9 & 12 & 23 \\ 0 & 0 & 0 & 1 & 3 & 9 \\ 0 & 0 & 0 & 0 & 1 & 1 \end{pmatrix}$$

~~Representare~~ & extreme

$$\begin{cases} x_1 + 2x_2 + 6x_3 + 5x_4 + 8x_5 = 34 \\ x_2 + 4x_3 + 7x_4 + 5x_5 = 16 \\ x_3 + 9x_4 + 12x_5 = 23 \\ x_4 + 3x_5 = 9 \\ x_5 = 1 \end{cases} \Leftrightarrow$$

$$\Leftrightarrow \begin{cases} x_1 = 34 - 2x_2 - 6x_3 - 5x_4 - 8x_5 \\ x_2 = 16 - 4x_3 - 7x_4 - 5x_5 \\ x_3 = 23 - 9x_4 - 12x_5 \\ x_4 = 9 - 3x_5 \\ x_5 = 1 \end{cases} \Leftrightarrow$$

$$\Leftrightarrow \begin{cases} x_1 = 34 - 2x_2 - 6x_3 - 30 - 8 \\ x_2 = 16 - 4x_3 - 42 - 5 \\ x_3 = 23 - 54 - 12 \\ x_4 = 6 \\ x_5 = 1 \end{cases} \Leftrightarrow$$

$$\Leftrightarrow \begin{cases} x_1 = 34 - 2x_2 - 6 \cdot (-43) - 30 - 8 \\ x_2 = 16 - 4 \cdot (-43) - 42 - 5 \\ x_3 = -43 \\ x_4 = 6 \\ x_5 = 1 \end{cases} \quad \Leftrightarrow$$

$$\Leftrightarrow \begin{cases} x_1 = 34 - 2 \cdot 141 - 6 \cdot -43 - 30 - 8 \\ x_2 = 141 \\ x_3 = -43 \\ x_4 = 6 \\ x_5 = 1 \end{cases} \quad \Leftrightarrow$$

$$\Leftrightarrow \begin{cases} x_1 = -28 \\ x_2 = 141 \\ x_3 = -43 \\ x_4 = 6 \\ x_5 = 1 \end{cases}$$