№ #11

Задача #1

$(0,0,1,-3)^T$; $(1,-2,-3,3)^T$; $(0,-1,0,0)^T$

$(1,-1,-1,-3)^T$; $(0,-1,0,0)^T$

$$\begin{vmatrix} 0 & 1 & -3 \\ 1 & -3 & 3 \\ -1 & 0 & 0 \\ 1 & -1 & -3 \\ -1 & 0 & 0 \end{vmatrix} \sim \begin{vmatrix} 1 & -2 & -3 & 3 \\ 1 & -1 & -1 & -3 \\ 0 & 0 & 1 & -3 \\ 0 & -1 & 0 & 0 \\ 0 & -1 & 0 & 0 \end{vmatrix} \sim \begin{vmatrix} 1 & -2 & -3 & 3 \\ 1 & -1 & -1 & -3 \\ 0 & 0 & 1 & -3 \\ 0 & -1 & 0 & 0 \\ 0 & -2 & 0 & 0 \end{vmatrix}$$

$$\begin{vmatrix} 1 & -2 & -3 & 3 \\ 1 & -1 & -1 & -3 \\ 0 & 0 & 1 & -3 \\ 0 & -1 & 1 & -3 \\ 0 & -2 & 0 & 0 \end{vmatrix} \sim \begin{vmatrix} 1 & -2 & -3 & 3 \\ 0 & 1 & 2 & -6 \\ 0 & 0 & 1 & -3 \\ 0 & -1 & 1 & -3 \\ 0 & -2 & 0 & 0 \end{vmatrix} \sim \begin{vmatrix} 1 & -2 & -3 & 3 \\ 0 & -2 & 0 & 0 \\ 0 & 1 & 2 & -6 \\ 0 & -1 & 1 & -3 \\ 0 & 0 & 1 & -3 \end{vmatrix}$$

$$\begin{vmatrix} 1 & -2 & -3 & 3 \\ 0 & -2 & 0 & 0 \\ 0 & 1 & 2 & -6 \\ 0 & 0 & 3 & -9 \\ 0 & 0 & 1 & -3 \end{vmatrix} \sim \begin{vmatrix} 1 & -2 & -3 & 3 \\ 0 & -2 & 0 & 0 \\ 0 & 0 & 2 & -6 \\ 0 & 0 & 3 & -9 \\ 0 & 0 & 1 & -3 \end{vmatrix} \sim \begin{vmatrix} 1 & -2 & -3 & 3 \\ 0 & -2 & 0 & 0 \\ 0 & 0 & 3 & -9 \\ 0 & 0 & 2 & -6 \\ 0 & 0 & 1 & -3 \end{vmatrix}$$

$$\begin{vmatrix} 1 & -2 & -3 & 3 \\ 0 & -1 & 0 & 0 \\ 0 & 0 & 3 & -9 \\ 0 & 0 & 2 & -6 \\ 0 & 0 & 0 & 0 \end{vmatrix} \sim \begin{vmatrix} 1 & -2 & -3 & 3 \\ 0 & -2 & 0 & 0 \\ 0 & 0 & 3 & -9 \\ 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 \end{vmatrix} \sim$$

$$\sim \begin{vmatrix} 1 & -2 & -3 & 3 \\ 0 & -2 & 0 & 0 \\ 0 & 0 & 3 & -9 \\ 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 \end{vmatrix} \begin{matrix} + \\ + \\ + \end{matrix} \Big\} \text{ambem}$$

Zagara #2

e_0 e_1 e_2 e_3 e_4

$$\begin{vmatrix} 1 \\ 0 \\ -1 \\ 0 \\ 2 \end{vmatrix} \quad \begin{vmatrix} -1 \\ 1 \\ -1 \\ 3 \\ 0 \end{vmatrix} \quad \begin{vmatrix} -2 \\ 0 \\ 2 \\ 0 \\ -4 \end{vmatrix} \quad \begin{vmatrix} -1 \\ 0 \\ 1 \\ 0 \\ -2 \end{vmatrix} \quad \begin{vmatrix} 0 \\ 1 \\ -2 \\ 3 \\ 2 \end{vmatrix}$$

$$\begin{pmatrix} 1 & 0 & -1 & 0 & 2 \\ -1 & 1 & -1 & 3 & 0 \\ -2 & 0 & 2 & 0 & -4 \\ -1 & 0 & 1 & 0 & -2 \\ 0 & 1 & -2 & 3 & 2 \end{pmatrix} \sim \begin{pmatrix} 0 & 1 & -2 & 3 & 2 \\ 1 & 0 & -1 & 0 & 2 \\ -1 & 1 & -1 & 3 & 0 \\ -1 & 0 & 1 & 0 & -2 \\ -2 & 0 & 2 & 0 & -4 \end{pmatrix} \sim$$

$$\begin{pmatrix} 0 & 1 & -2 & 3 & 2 \\ 0 & 1 & -2 & 3 & 2 \\ -1 & 1 & -1 & 3 & 0 \\ -1 & 0 & 1 & 0 & -2 \\ -2 & 0 & 2 & 0 & -4 \end{pmatrix} \sim \begin{pmatrix} 0 & 1 & -2 & 3 & 2 \\ 0 & 1 & -2 & 3 & 2 \\ -1 & 1 & -1 & 3 & 0 \\ -1 & 0 & 1 & 0 & -2 \\ -2 & 0 & 2 & 0 & -4 \end{pmatrix} \sim$$

$$\begin{pmatrix} 0 & 1 & -2 & 3 & 2 \\ 0 & 1 & -2 & 3 & 2 \\ 0 & 1 & -2 & 3 & 2 \\ -1 & 0 & 1 & 0 & -2 \\ -2 & 0 & 2 & 0 & -4 \end{pmatrix} \sim \begin{pmatrix} 0 & 1 & -2 & 3 & 2 \\ 0 & 1 & -2 & 3 & 2 \\ 0 & 1 & -2 & 3 & 2 \\ 0 & 0 & 0 & 0 & 0 \\ -2 & 0 & 2 & 0 & -4 \end{pmatrix} \sim$$

$$\begin{pmatrix} 0 & 0 & 0 & 0 & 0 \\ 0 & 1 & -2 & 3 & 2 \\ 0 & 1 & -2 & 3 & 2 \\ 0 & 0 & 0 & 0 & 0 \\ -2 & 0 & 2 & 0 & -4 \end{pmatrix} \sim \begin{pmatrix} 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 1 & -2 & 3 & 2 \\ 0 & 0 & 0 & 0 & 0 \\ 2 & 0 & 2 & 0 & -4 \end{pmatrix} \begin{matrix} \sim \\ + \\ \\ \\ + \end{matrix}$$

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Задача # 3

L_1 : $(1, 2, 1, -6)^T$; $(-1, 2, 1, -6)^T$; $(2, -2, -1, 6)^T$

L_2 : $(-2, 4, 2, -12)^T$; $(1, -2, -1, 6)^T$

$$L_1: \begin{vmatrix} 1 & 2 & 1 & -6 \\ -1 & 2 & 1 & -6 \\ 2 & -2 & -1 & 6 \end{vmatrix} \sim \begin{vmatrix} 2 & -2 & -1 & 6 \\ 1 & 2 & 1 & -6 \\ -1 & 2 & 1 & -6 \end{vmatrix} \sim \begin{vmatrix} 2 & -2 & -1 & 6 \\ 1 & 2 & 1 & -6 \\ 0 & 4 & 2 & -12 \end{vmatrix}$$

$$\begin{vmatrix} 2 & -2 & -1 & 6 \\ 0 & 3 & 3/2 & -9 \\ 0 & 4 & 2 & -12 \end{vmatrix} \sim \begin{vmatrix} 2 & -2 & -1 & 6 \\ 0 & 3 & 3/2 & -9 \\ 0 & 0 & 0 & 0 \end{vmatrix}$$

$$L_2: \begin{vmatrix} -2 & 4 & 2 & -12 \\ 1 & -1 & -1 & 6 \end{vmatrix} \sim \begin{vmatrix} -2 & 4 & 2 & -12 \\ 0 & 1 & 0 & 0 \end{vmatrix}$$

$$\begin{vmatrix} 2 & -2 & -1 & 6 \\ 0 & 3 & 3/2 & -9 \end{vmatrix} (2) \uparrow = |-2, 4, 2, -12|$$

Задание #4

$e_0(1, 0, 1, 0, -4)^T$ $e_1(-2, 1, -3, -2, 11)^T$

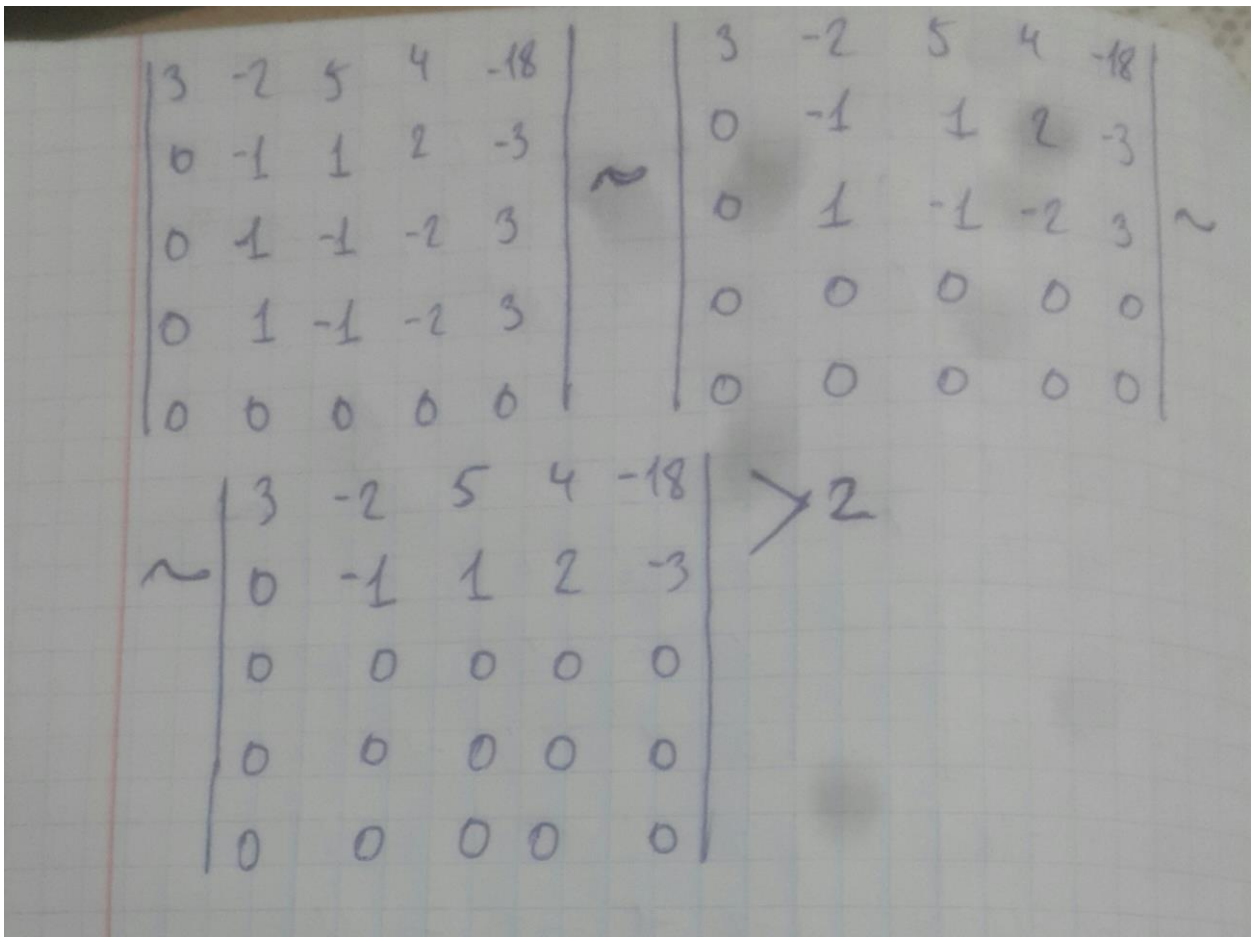
$e_2(-1, 1, -2, -2, 7)^T$ $e_3(2, -2, 4, 4, -14)^T$

$e_5(3, -2, 5, 4, -18)^T$

$$\begin{vmatrix} 3 & -2 & 5 & 4 & -18 \\ -2 & 1 & -3 & -2 & 11 \\ 2 & -2 & 4 & 4 & -14 \\ 1 & 0 & 1 & 0 & -4 \\ -1 & 1 & -2 & -2 & 7 \end{vmatrix} \sim \begin{vmatrix} 3 & -2 & 5 & 4 & -18 \\ -2 & 1 & -3 & 2 & 11 \\ 2 & -2 & 4 & 4 & -14 \\ 1 & 0 & 1 & 0 & -4 \\ 0 & 1 & -1 & -2 & 3 \end{vmatrix} \sim$$

$$\begin{vmatrix} 3 & -2 & 5 & 4 & -18 \\ -2 & 1 & -3 & -2 & 11 \\ 2 & -2 & 4 & 4 & -14 \\ 0 & 1 & -1 & -2 & 3 \\ 0 & 1 & -1 & -2 & 3 \end{vmatrix} \sim \begin{vmatrix} 3 & -2 & 5 & 4 & -18 \\ -2 & 1 & -3 & -2 & 11 \\ 0 & -1 & 1 & 2 & -3 \\ 0 & 1 & -1 & -2 & 3 \\ 0 & 1 & -1 & -2 & 3 \end{vmatrix} \sim$$

$$\begin{vmatrix} 3 & -2 & 5 & 4 & -18 \\ 0 & -1/3 & 1/3 & 2/3 & -1 \\ 0 & -1 & 1 & 2 & -3 \\ 0 & 1 & -1 & -2 & 3 \\ 0 & 1 & -1 & -2 & 3 \end{vmatrix} \sim \begin{vmatrix} 3 & -2 & 5 & 4 & -18 \\ 0 & -1 & 1 & 2 & -3 \\ 0 & 1 & -1 & -2 & 3 \\ 0 & 1 & -1 & -2 & 3 \\ 0 & -1/3 & 1/3 & 2/3 & -1 \end{vmatrix} \sim$$


3 -2 5 4 -18
0 -1 1 2 -3
0 1 -1 -2 3
0 1 -1 -2 3
0 0 0 0 0
~
3 -2 5 4 -18
0 -1 1 2 -3
0 1 -1 -2 3
0 0 0 0 0
0 0 0 0 0
~
~
3 -2 5 4 -18
0 -1 1 2 -3
0 0 0 0 0
0 0 0 0 0
0 0 0 0 0
> 2