Д/З к уроку №1

1. $7\cdot\begin{bmatrix}5 & 10\\ 7 & 12\\ 11{,}3 & 5\\ 25 & 30\end{bmatrix} + 2\cdot\begin{bmatrix}5 & 10\\ 7 & 12\\ 11{,}3 & 5\\ 25 & 30\end{bmatrix} = \begin{bmatrix}35 & 70\\ 49 & 84\\ 79{,}1 & 35\\ 175 & 210\end{bmatrix} + \begin{bmatrix}10 & 20\\ 14 & 24\\ 22{,}6 & 10\\ 50 & 60\end{bmatrix} =$

$= \begin{bmatrix}45 & 90\\ 63 & 108\\ 101{,}7 & 45\\ 225 & 270\end{bmatrix}$

2.1) $\begin{cases} 3x - 2y + 5z = 7 \\ 7x + 4y - 8z = 3 \\ 5x - 3y - 4z = -12 \end{cases}$

$\begin{cases} x = \frac{2y - 5z + 7}{3} \\ y = \frac{-7x + 8z + 3}{4} \\ z = \frac{5x - 3y + 12}{4} \end{cases}$

Решим систему уравнений методом подстановки.

1) $y = \frac{-7\cdot\left(\frac{2y-5z+7}{3}\right) + 8z + 3}{4}$

$y = \frac{-14y + 35z - 49}{12} + \frac{\cdot 3\ 8z}{4} + \frac{\cdot -3\ 3}{4}$

$y = \frac{-14y + 35z - 49 + 24z + 9}{12}$

$12y = -14y + 59z - 40$

$14y + 12y = 59z - 40$

$26y = 59z - 40$

$y = \frac{59z - 40}{26}$

2) $z = \frac{5\cdot\left(\frac{2y-5z+7}{3}\right) - 3y + 12}{4}$

$z = \frac{10y - 25z + 35}{12} - \frac{9y}{12} + \frac{36}{12}$

$z = \frac{y - 25z + 71}{12}$

$12z = y - 25z + 71$

$25z + 12z = y + 71$

$37z = y + 71$

$z = \frac{y+71}{37}$

$\begin{cases} y = \frac{59z - 40}{26} \\ z = \frac{y+71}{37} \end{cases}$

$y = \frac{59\cdot\left(\frac{y+71}{37}\right) - 40}{26} = \frac{59y + 4189}{37\cdot 26} - \frac{\cdot 37\ 40}{26}$

$= \frac{59y + 4189 - 1480}{962} = \frac{59y + 2709}{962}$

$962y = 59y + 2709$

$903y = 2709$

$y = 3$

$z = \frac{3+71}{37} = 2$