$$\begin{cases} x-2y-3z=6 \\ 2x-3y+z=-1 \\ 3x+y+z=5 \end{cases} \qquad \begin{pmatrix} 1 & -2 & -3 \\ 2 & -3 & 1 \\ 3 & 1 & 1 \end{pmatrix} \begin{pmatrix} x \\ y \\ z \end{pmatrix} = \begin{pmatrix} 6 \\ -1 \\ -5 \end{pmatrix}$$

$$\begin{cases} x-2y-3z=6 \\ y+7z=-13 \\ 7y+10z=-13 \end{cases} \quad \begin{matrix} -2*(I)+(II) \\ -3*(I)+(III) \end{matrix}$$

$$\begin{cases} x-2y-3z=6 \\ y+7z=-13 \\ -39z=78 \end{cases}$$

$$\begin{cases} x+y+z=1 \\ 8x-y+2z=0 \\ 25x-2y+7z=1 \end{cases}$$

$$\begin{cases} -9y-7z=-7 & -8*(I)+(II) \\ -27y-18z=-24 & -25*(I)+(III) \end{cases}$$

$$\begin{cases} 9y+7z=7 & -1*(I) \\ 9y+6z=8 & -1/3*(II) \end{cases}$$

$$-z=1 \qquad -1*(I)+(II)$$

$$x=4/9 \quad y=14/9 \quad z=-1$$

x-5y+9z=-1
3x-y+5z=1
x+2y-2z=2

14y-22z=4 (II)-3*(I)
7y-11z=3 (III)-(I)

7y-11z=2 1/2*(I)
7y-11z=3

x+2y+5z=-9
x-y+3z=2
3x-6y-z=25
---
x+2y+5z=-9
-3y-2z=11 (II)-(I)
-12y-16z=52 (III)-3(I)

3y+2z=-11 -1*(II)
3y+4z=-13 -1/4*(III)

2z=-2 (III)-(II)

x=2 y=-3 z=-1

4x+4y+5z=6
x+y+2z=3
7x+7y+8z=10
---
x+y+2z=3
4x+4y+5z=6
7x+7y+8z=10

-3z=-12 (z=4) (II)-4(I)
-6z=-11 (z=11/6) (III)-7(I)

x(6,4,-1)
y(2,1,6)
z(1,0,4)
---------- Lin. függetlenek?
$a\underline{x}+b\underline{y}+c\underline{z}=\underline{0}$

$$a\begin{pmatrix}6\\4\\-1\end{pmatrix}+b\begin{pmatrix}2\\1\\6\end{pmatrix}+c\begin{pmatrix}1\\0\\4\end{pmatrix}=\begin{pmatrix}0\\0\\0\end{pmatrix}$$

6a+2b+c=0
4a+b=0
-a+6b+4c=0

-a+6b+4c=0
6a+2b+c=0
4a+b=0

38b+25c=0 (II)+6(I)
25b+16c=0 (III)+4(I)

25b+16c=0
38b+25c=0

(25-38*16/25)c=0 (II)-38/25(I)

a=0 b=0 c=0

n x n determináns. És

ha i=j, akkor aij=1
ha i != j, akkor aij=0

$$\begin{vmatrix} 1 & 0 & 0 & 0 & \dots & 0 \\ 0 & 1 & 0 & 0 & \dots & 0 \\ 0 & 0 & 1 & 0 & \dots & 0 \\ 0 & 0 & 0 & 1 & \dots & 0 \\ . & & & & & \\ . & & & & & \\ . & & & & & \\ 0 & 0 & 0 & 0 & \dots & 1 \end{vmatrix} = 1$$

n x n determináns

ha i=j, akkor aij=i
ha i != j, akkor aij=0

$$\begin{vmatrix} 1 & 0 & 0 & 0 & \dots & 0 \\ 0 & 2 & 0 & 0 & \dots & 0 \\ 0 & 0 & 3 & 0 & \dots & 0 \\ 0 & 0 & 0 & 4 & \dots & 0 \\ . & & & & & \\ . & & & & & \\ . & & & & & \\ 0 & 0 & 0 & 0 & \dots & n \end{vmatrix} = \begin{vmatrix} 2 & 0 & 0 & \dots & 0 \\ 0 & 3 & 0 & \dots & 0 \\ 0 & 0 & 4 & \dots & 0 \\ . & & & & \\ . & & & & \\ . & & & & \\ 0 & 0 & 0 & \dots & n \end{vmatrix} = 2 \begin{vmatrix} 3 & 0 & \dots & 0 \\ 0 & 4 & \dots & 0 \\ . & & & \\ . & & & \\ . & & & \\ 0 & 0 & \dots & n \end{vmatrix} = n!$$