$$\begin{pmatrix} x \\ y \\ z \end{pmatrix}' = \begin{pmatrix} 2 & -1 & -1 \\ 2 & -1 & -2 \\ -1 & 1 & 2 \end{pmatrix} \cdot \begin{pmatrix} x \\ y \\ z \end{pmatrix}$$

$$p(\lambda) = -(\lambda-1)^3 = 0$$

$$\underline{\lambda_{1,2,3} = 1}$$

$$\dots \underline{\begin{pmatrix} (at^2+bt+c)e^t \\ (dt^2+ft+g)e^t \\ (ht^2+jt+k)e^t \end{pmatrix} = \begin{pmatrix} x \\ y \\ z \end{pmatrix}}$$

$$x' = (2at+b)\cdot e^t + (at^2+bt+c)\cdot e^t$$

$$y' = (2dt+f)\cdot e^t + (dt^2+ft+g)\cdot e^t$$

$$z' = (2ht+j)\cdot e^t + (ht^2+jt+k)\cdot e^t$$

$$\Downarrow \text{ PO VYKRÁTENÍ } e^t:$$

$$2at+b+at^2+bt+c = 2at^2+2bt+2c-dt^2-ft-g-ht^2-jt-k$$

$$2dt+f+dt^2+ft+g = 2at^2+2bt+2c-dt^2-ft-g-2ht^2-2jt-2k$$

$$2ht+j+ht^2+jt+k = -at^2-bt-c+dt^2+ft+g+2ht^2+2jt+2k$$

$$\left.\begin{array}{l} t^2: \; a = 2a-d-h \\ \quad\; d = 2a-d-2h \\ \quad\; h = -a+d+2h \end{array}\right\} \Leftrightarrow \underline{\underline{a = d+h}}$$

$$\left.\begin{array}{rcl} t^1: \; 2a+b = 2b-f-j & \Rightarrow & 2a+f+j = b \\ f+2d = 2b-f-2j & \Rightarrow & d+f+j = b \end{array}\right\} \Rightarrow \underline{d = 2a}$$

$$\left.\begin{array}{rcl} & & \\ j+2h = -b+f+2j & \Rightarrow & 2h+b = f+j \end{array}\right\} \Rightarrow \underline{d = -2h}$$

NEZÁVISLÉ ROVNICE : $\boxed{d = 2a \;,\; d = -2h \;,\; d + f + j = b}$

t^a: $b + c = 2c - g - k \Rightarrow b + g + k = c$

$g + f = -g - 2k + 2c \Rightarrow 2(g+k) + f = 2c$ $\Rightarrow f = 2b$

$k + j = -c + g + 2k \Rightarrow j + c = g + k$ $\Rightarrow f = -2j$

NEZÁVISLÉ ROVNICE : $\boxed{f = 2b \;,\; f = -2j \;,\; b + g + k = c}$

POTOM : $d + \underbrace{f}_{2b} + \underbrace{j}_{-b} = b \Rightarrow \boxed{d = 0}$

$\boxed{a = 0 = h}$

$\Rightarrow$ NEZÁVISLÉ PREMENNÉ : $b \;,\; g \;,\; k$:

$\boxed{a = 0 \;,\; c = b + g + k \;,\; d = 0 \;,\; f = 2b \;,\; h = 0 \;,\; j = -b}$

... 3 LNZ RIEŠENIA :

$b = 1 \;,\; g = 0 = k$: ✗

$\boxed{a = 0 \;,\; b = 1 \;,\; c = 1 \;,\; d = 0 \;,\; f = 2 \;,\; g = 0 \;,\; h = 0 \;,\; j = -1 \;,\; k = 0}$

$b = 0 = k \;,\; g = 1$

$$a=0 \;,\; b=0 \;,\; c=1 \;,\; d=0 \;,\; f=0 \;,\; g=1 \;,\; h=0 \;,\; j=0 \;,\; k=0$$

$b = 0 = g \;,\; k = 1$

$$a=0 \;,\; b=0 \;,\; c=1 \;,\; d=0 \;,\; f=0 \;,\; g=0 \;,\; h=0 \;,\; j=0 \;,\; k=1$$

$\rightsquigarrow$ ODPOVEDAJÚCE RIEŠENIA:

$$\begin{pmatrix} (t+1)e^t \\ 2te^t \\ -te^t \end{pmatrix} \;;\; \begin{pmatrix} e^t \\ e^t \\ 0 \end{pmatrix} \;;\; \begin{pmatrix} e^t \\ 0 \\ e^t \end{pmatrix}$$