"Read at first the eActivity LinEqSys_AVRank"

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$$\begin{bmatrix} 3 & 2 & t & 0 \\ 0 & 1 & -4 & 1 \\ 1 & 3 & 0 & -1 \\ -1 & 0 & 2 & -1 \end{bmatrix} \Rightarrow matST$$

$$\begin{bmatrix} 3 & 2 & t & 0 \\ 0 & 1 & -4 & 1 \\ 1 & 3 & 0 & -1 \\ -1 & 0 & 2 & -1 \end{bmatrix}$$

LinEqSys(matST,1,1)

done

matnew⇒matT1

$$\begin{bmatrix} -\frac{2}{3} & \frac{-t}{3} & 0 \\ 1 & -4 & 1 \\ \frac{7}{3} & \frac{-t}{3} & -1 \\ \frac{2}{3} & \frac{t}{3}+2 & -1 \end{bmatrix}$$

LinEqSys(matT1,2,1)

done

matnew⇒matT2

$$\begin{bmatrix} \frac{-(t+8)}{3} & \frac{2}{3} \\ 4 & -1 \\ \frac{-(t-28)}{3} & -\frac{10}{3} \\ \frac{t+14}{3} & -\frac{5}{3} \end{bmatrix}$$

"If t≠28 than we have a third exchange-step"

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LinEqSys(matT2,3,1)

done

matnew→matET

$$\begin{bmatrix} \frac{4\cdot(t+2)}{t-28} \\ \frac{-40}{t-28}-1 \\ \frac{-10}{t-28} \\ \frac{-5\cdot t}{t-28} \end{bmatrix}$$

"matET is the solution, if the last element -5t/(t-:▸

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matET|t=0

$$\begin{bmatrix} -\frac{2}{7} \\ \frac{3}{7} \\ \frac{5}{14} \\ 0 \end{bmatrix}$$

"Thus x=-2/7, y=3/7, z=5/14"

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"Remark: rank of matST is 3 for t=0 and 4 otherwis▸

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AVRank(matST,1,1)

done

matnew→matT1

$$\begin{bmatrix} 1 & -4 & 1 \\ \frac{7}{3} & \frac{-t}{3} & -1 \\ \frac{2}{3} & \frac{t}{3}+2 & -1 \end{bmatrix}$$

AVRank(matT1,1,1)

done

matnew▶matT2

$$\begin{bmatrix} \frac{-(t-28)}{3} & -\frac{10}{3} \\ \frac{t+14}{3} & -\frac{5}{3} \end{bmatrix}$$

"If t≠28 we compute:"

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AVRank(matT2,1,1)

done

matnew▶matT3

$$\begin{bmatrix} \frac{-5 \cdot t}{t-28} \end{bmatrix}$$

"If t≠-14 we compute:"

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AVRank(matT2,2,1)

done

matnew▶matT3

$$\begin{bmatrix} \frac{-5 \cdot t}{t+14} \end{bmatrix}$$

"Thus we have 3 steps, i.e. rank equals 3 and for▸

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