

with(LinearAlgebra) :

for i from 1 while i ≤ 18 do

A := RandomMatrix(3, generator=-4..4) :

if abs(Determinant(A)) = 1 then

print(M=A, Determináns = Determinant(A), Inverz = MatrixInverse(A)) :

else i := i - 1 :

end if:

end do:

$$M = \begin{bmatrix} 3 & -3 & -1 \\ 1 & -2 & -1 \\ 1 & 2 & 2 \end{bmatrix}, \text{Determináns} = -1, \text{Inverz} = \begin{bmatrix} 2 & -4 & -1 \\ 3 & -7 & -2 \\ -4 & 9 & 3 \end{bmatrix}$$

$$M = \begin{bmatrix} -4 & -1 & 4 \\ 3 & 0 & -4 \\ -4 & -3 & 1 \end{bmatrix}, \text{Determináns} = -1, \text{Inverz} = \begin{bmatrix} 12 & 11 & -4 \\ -13 & -12 & 4 \\ 9 & 8 & -3 \end{bmatrix}$$

$$M = \begin{bmatrix} -3 & 4 & 2 \\ -2 & -4 & -1 \\ 3 & -1 & -1 \end{bmatrix}, \text{Determináns} = -1, \text{Inverz} = \begin{bmatrix} -3 & -2 & -4 \\ 5 & 3 & 7 \\ -14 & -9 & -20 \end{bmatrix}$$

$$M = \begin{bmatrix} 1 & -1 & -1 \\ 4 & 0 & 1 \\ 3 & 2 & 3 \end{bmatrix}, \text{Determináns} = -1, \text{Inverz} = \begin{bmatrix} 2 & -1 & 1 \\ 9 & -6 & 5 \\ -8 & 5 & -4 \end{bmatrix}$$

$$M = \begin{bmatrix} 3 & 0 & 4 \\ -1 & -1 & 0 \\ 2 & 1 & 1 \end{bmatrix}, \text{Determináns} = 1, \text{Inverz} = \begin{bmatrix} -1 & 4 & 4 \\ 1 & -5 & -4 \\ 1 & -3 & -3 \end{bmatrix}$$

$$M = \begin{bmatrix} 2 & -1 & 2 \\ 0 & 4 & -1 \\ -1 & -4 & 0 \end{bmatrix}, \text{Determináns} = -1, \text{Inverz} = \begin{bmatrix} 4 & 8 & 7 \\ -1 & -2 & -2 \\ -4 & -9 & -8 \end{bmatrix}$$

$$M = \begin{bmatrix} -3 & -3 & -4 \\ -2 & -2 & -3 \\ -2 & -1 & -1 \end{bmatrix}, \text{Determináns} = -1, \text{Inverz} = \begin{bmatrix} 1 & -1 & -1 \\ -4 & 5 & 1 \\ 2 & -3 & 0 \end{bmatrix}$$

$$M = \begin{bmatrix} 3 & -1 & 2 \\ 4 & 0 & -1 \\ -2 & -1 & 3 \end{bmatrix}, \text{Determináns} = -1, \text{Inverz} = \begin{bmatrix} 1 & -1 & -1 \\ 10 & -13 & -11 \\ 4 & -5 & -4 \end{bmatrix}$$

$$M = \begin{bmatrix} -4 & 3 & -4 \\ 0 & 0 & 1 \\ -3 & 2 & -4 \end{bmatrix}, \text{Determináns} = -1, \text{Inverz} = \begin{bmatrix} 2 & -4 & -3 \\ 3 & -4 & -4 \\ 0 & 1 & 0 \end{bmatrix}$$

$$M = \begin{bmatrix} 0 & -1 & 2 \\ 1 & 2 & -1 \\ -1 & 0 & -2 \end{bmatrix}, \text{Determináns} = 1, \text{Inverz} = \begin{bmatrix} -4 & -2 & -3 \\ 3 & 2 & 2 \\ 2 & 1 & 1 \end{bmatrix}$$

$$M = \begin{bmatrix} 1 & -2 & 1 \\ 3 & -2 & -4 \\ -1 & -1 & 4 \end{bmatrix}, \text{Determináns} = -1, \text{Inverz} = \begin{bmatrix} 12 & -7 & -10 \\ 8 & -5 & -7 \\ 5 & -3 & -4 \end{bmatrix}$$

$$M = \begin{bmatrix} 3 & 1 & 2 \\ -4 & 3 & 3 \\ 4 & 0 & 1 \end{bmatrix}, \text{Determináns} = 1, \text{Inverz} = \begin{bmatrix} 3 & -1 & -3 \\ 16 & -5 & -17 \\ -12 & 4 & 13 \end{bmatrix}$$

$$M = \begin{bmatrix} 1 & 3 & 3 \\ 1 & -2 & 0 \\ 1 & -4 & -1 \end{bmatrix}, \text{Determináns} = -1, \text{Inverz} = \begin{bmatrix} -2 & 9 & -6 \\ -1 & 4 & -3 \\ 2 & -7 & 5 \end{bmatrix}$$

$$M = \begin{bmatrix} 2 & -4 & -1 \\ -2 & -1 & 3 \\ 1 & 4 & -3 \end{bmatrix}, \text{Determináns} = 1, \text{Inverz} = \begin{bmatrix} -9 & -16 & -13 \\ -3 & -5 & -4 \\ -7 & -12 & -10 \end{bmatrix}$$

$$M = \begin{bmatrix} 2 & 1 & -1 \\ -2 & -3 & -4 \\ -1 & -2 & -3 \end{bmatrix}, \text{Determináns} = -1, \text{Inverz} = \begin{bmatrix} -1 & -5 & 7 \\ 2 & 7 & -10 \\ -1 & -3 & 4 \end{bmatrix}$$

$$M = \begin{bmatrix} 3 & -2 & 0 \\ 1 & -1 & 0 \\ 0 & -2 & -1 \end{bmatrix}, \text{Determináns} = 1, \text{Inverz} = \begin{bmatrix} 1 & -2 & 0 \\ 1 & -3 & 0 \\ -2 & 6 & -1 \end{bmatrix}$$

$$M = \begin{bmatrix} 1 & 1 & 1 \\ -1 & 0 & -2 \\ 2 & -1 & 4 \end{bmatrix}, \text{Determináns} = -1, \text{Inverz} = \begin{bmatrix} 2 & 5 & 2 \\ 0 & -2 & -1 \\ -1 & -3 & -1 \end{bmatrix}$$

$$M = \begin{bmatrix} 3 & -1 & 3 \\ 2 & -2 & 3 \\ 3 & 4 & -1 \end{bmatrix}, \text{Determináns} = 1, \text{Inverz} = \begin{bmatrix} -10 & 11 & 3 \\ 11 & -12 & -3 \\ 14 & -15 & -4 \end{bmatrix}$$

(1)

for i **from** 1 **while** $i \leq 17$ **do**

$A := \text{RandomMatrix}(3, \text{generator} = -5..5) :$

if $\text{abs}(\text{Determinant}(A)) \leq 10$ **and** $\text{Determinant}(A) \neq 0$ **then**

$\text{print}(M=A, \text{Determináns} = \text{Determinant}(A), \text{Inverz} = \text{MatrixInverse}(A)) :$

else $i := i - 1 :$

end if:

end do:

$$M = \begin{bmatrix} -1 & 5 & 2 \\ 2 & -4 & -3 \\ -2 & 1 & 1 \end{bmatrix}, \text{Determináns} = 9, \text{Inverz} = \begin{bmatrix} -\frac{1}{9} & -\frac{1}{3} & -\frac{7}{9} \\ \frac{4}{9} & \frac{1}{3} & \frac{1}{9} \\ -\frac{2}{3} & -1 & -\frac{2}{3} \end{bmatrix}$$

$$M = \begin{bmatrix} 0 & -4 & -4 \\ -5 & -4 & -1 \\ -3 & 1 & 3 \end{bmatrix}, \text{Determináns} = -4, \text{Inverz} = \begin{bmatrix} \frac{11}{4} & -2 & 3 \\ -\frac{9}{2} & 3 & -5 \\ \frac{17}{4} & -3 & 5 \end{bmatrix}$$

$$M = \begin{bmatrix} -3 & 0 & -5 \\ -3 & 2 & -3 \\ -5 & 5 & -2 \end{bmatrix}, \text{Determináns} = -8, \text{Inverz} = \begin{bmatrix} -\frac{11}{8} & \frac{25}{8} & -\frac{5}{4} \\ -\frac{9}{8} & \frac{19}{8} & -\frac{3}{4} \\ \frac{5}{8} & -\frac{15}{8} & \frac{3}{4} \end{bmatrix}$$

$$M = \begin{bmatrix} -3 & 1 & 5 \\ 1 & 0 & -3 \\ 4 & -3 & 5 \end{bmatrix}, \text{Determináns} = -5, \text{Inverz} = \begin{bmatrix} \frac{9}{5} & 4 & \frac{3}{5} \\ \frac{17}{5} & 7 & \frac{4}{5} \\ \frac{3}{5} & 1 & \frac{1}{5} \end{bmatrix}$$

$$M = \begin{bmatrix} 0 & -5 & -5 \\ 4 & -4 & -2 \\ -1 & -3 & -4 \end{bmatrix}, \text{Determináns} = -10, \text{Inverz} = \begin{bmatrix} -1 & \frac{1}{2} & 1 \\ -\frac{9}{5} & \frac{1}{2} & 2 \\ \frac{8}{5} & -\frac{1}{2} & -2 \end{bmatrix}$$

$$M = \begin{bmatrix} -1 & 5 & -2 \\ 1 & -4 & 0 \\ -1 & -1 & 0 \end{bmatrix}, \text{Determináns} = 10, \text{Inverz} = \begin{bmatrix} 0 & \frac{1}{5} & -\frac{4}{5} \\ 0 & -\frac{1}{5} & -\frac{1}{5} \\ -\frac{1}{2} & -\frac{3}{5} & -\frac{1}{10} \end{bmatrix}$$

$$M = \begin{bmatrix} 5 & 5 & -5 \\ -5 & -1 & 4 \\ -2 & -4 & 3 \end{bmatrix}, \text{Determináns} = 10, \text{Inverz} = \begin{bmatrix} \frac{13}{10} & \frac{1}{2} & \frac{3}{2} \\ \frac{7}{10} & \frac{1}{2} & \frac{1}{2} \\ \frac{9}{5} & 1 & 2 \end{bmatrix}$$

$$M = \begin{bmatrix} 0 & -4 & 2 \\ -4 & 4 & 1 \\ -5 & 0 & 4 \end{bmatrix}, \text{Determináns} = -4, \text{Inverz} = \begin{bmatrix} -4 & -4 & 3 \\ -\frac{11}{4} & -\frac{5}{2} & 2 \\ -5 & -5 & 4 \end{bmatrix}$$

$$M = \begin{bmatrix} 0 & 2 & 1 \\ 1 & -3 & -5 \\ -1 & -2 & 5 \end{bmatrix}, \text{Determináns} = -5, \text{Inverz} = \begin{bmatrix} 5 & \frac{12}{5} & \frac{7}{5} \\ 0 & -\frac{1}{5} & -\frac{1}{5} \\ 1 & \frac{2}{5} & \frac{2}{5} \end{bmatrix}$$

$$M = \begin{bmatrix} -2 & -5 & 2 \\ -5 & 1 & 1 \\ -4 & -2 & 2 \end{bmatrix}, \text{Determináns} = -10, \text{Inverz} = \begin{bmatrix} -\frac{2}{5} & -\frac{3}{5} & \frac{7}{10} \\ -\frac{3}{5} & -\frac{2}{5} & \frac{4}{5} \\ -\frac{7}{5} & -\frac{8}{5} & \frac{27}{10} \end{bmatrix}$$

$$M = \begin{bmatrix} -2 & -3 & 2 \\ -2 & 5 & 3 \\ -4 & 1 & 5 \end{bmatrix}, \text{Determináns} = -2, \text{Inverz} = \begin{bmatrix} -11 & -\frac{17}{2} & \frac{19}{2} \\ 1 & 1 & -1 \\ -9 & -7 & 8 \end{bmatrix}$$

$$M = \begin{bmatrix} -1 & -4 & -5 \\ 3 & 4 & 1 \\ 4 & 3 & -2 \end{bmatrix}, \text{Determináns} = 6, \text{Inverz} = \begin{bmatrix} -\frac{11}{6} & -\frac{23}{6} & \frac{8}{3} \\ \frac{5}{3} & \frac{11}{3} & -\frac{7}{3} \\ -\frac{7}{6} & -\frac{13}{6} & \frac{4}{3} \end{bmatrix}$$

$$M = \begin{bmatrix} 1 & 0 & -1 \\ 2 & 4 & 4 \\ -3 & -2 & -2 \end{bmatrix}, \text{Determináns} = -8, \text{Inverz} = \begin{bmatrix} 0 & -\frac{1}{4} & -\frac{1}{2} \\ 1 & \frac{5}{8} & \frac{3}{4} \\ -1 & -\frac{1}{4} & -\frac{1}{2} \end{bmatrix}$$

$$M = \begin{bmatrix} -4 & 1 & -4 \\ -4 & -1 & -2 \\ -1 & -2 & 0 \end{bmatrix}, \text{Determináns} = -10, \text{Inverz} = \begin{bmatrix} \frac{2}{5} & -\frac{4}{5} & \frac{3}{5} \\ -\frac{1}{5} & \frac{2}{5} & -\frac{4}{5} \\ -\frac{7}{10} & \frac{9}{10} & -\frac{4}{5} \end{bmatrix}$$

$$M = \begin{bmatrix} 2 & 4 & 2 \\ -2 & -3 & 4 \\ 0 & 1 & 2 \end{bmatrix}, \text{Determináns} = -8, \text{Inverz} = \begin{bmatrix} \frac{5}{4} & \frac{3}{4} & -\frac{11}{4} \\ -\frac{1}{2} & -\frac{1}{2} & \frac{3}{2} \\ \frac{1}{4} & \frac{1}{4} & -\frac{1}{4} \end{bmatrix}$$

$$M = \begin{bmatrix} -4 & 3 & -3 \\ 2 & 3 & -1 \\ -4 & 1 & -2 \end{bmatrix}, \text{Determináns} = 2, \text{Inverz} = \begin{bmatrix} -\frac{5}{2} & \frac{3}{2} & 3 \\ 4 & -2 & -5 \\ 7 & -4 & -9 \end{bmatrix}$$

$$M = \begin{bmatrix} 2 & -4 & -3 \\ 2 & -3 & -3 \\ 0 & 0 & -3 \end{bmatrix}, \text{Determináns} = -6, \text{Inverz} = \begin{bmatrix} -\frac{3}{2} & 2 & -\frac{1}{2} \\ -1 & 1 & 0 \\ 0 & 0 & -\frac{1}{3} \end{bmatrix}$$

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