



Atividades- Oficina Wxmaxima

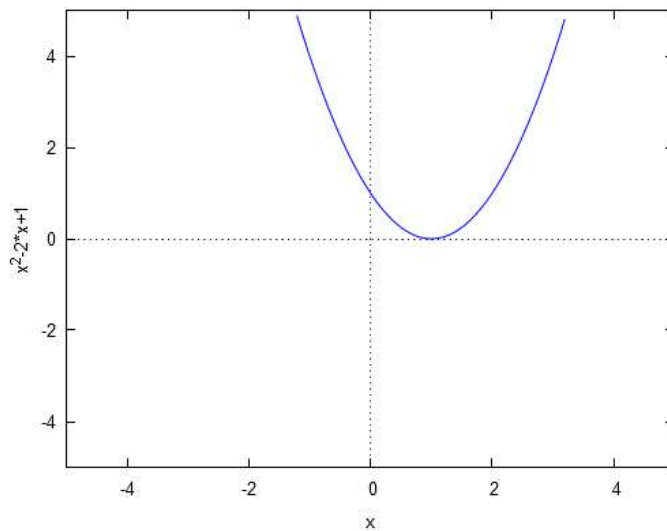
Bolsistas: Jocilene Soares

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1º Matrizes, determinantes

2º

1) $f(x) = y = x^2 - 2x + 1$



2) $z = f(x, y) = x^2 + y^2$

3) `limit((x^2-9)/x-3, x, 3);`
-3

4)

5) `integrate(2*x-e^x, x);`
 $x^2 - \frac{e^x}{\log(e)}$

6)
$$\begin{bmatrix} 2 & -1 & 0 \\ 3 & 2 & 1 \\ 2 & -1 & 3 \end{bmatrix}$$

`determinant(%);`
21

7) `invert(matrix([2,-1,0],[3,2,1],[2,-1,3])).`
$$\begin{bmatrix} \frac{1}{3} & \frac{1}{7} & -\frac{1}{21} \\ -\frac{1}{3} & \frac{2}{7} & -\frac{2}{21} \\ -\frac{1}{3} & 0 & \frac{1}{3} \end{bmatrix}$$

8) Autovalores:

$$\begin{aligned}
 (\#o15) \quad & \left[\left[-\frac{11 \left(\frac{\sqrt{3} \mathfrak{k}i - 1}{2} \right)}{9 \left(\frac{\sqrt{199} - 7}{2 \cdot 3^{3/2}} - \frac{1}{54} \right)^{1/3}} + \left(\frac{\sqrt{199} - 7}{2 \cdot 3^{3/2}} - \frac{1}{54} \right)^{1/3} \left(-\frac{\sqrt{3} \mathfrak{k}i - 1}{2} \right) + \frac{7}{3}, \left(\frac{\sqrt{199} - 7}{2 \cdot 3^{3/2}} - \frac{1}{54} \right)^{1/3} \left(\frac{\sqrt{3} \mathfrak{k}i - 1}{2} \right) - \frac{11 \left(-\frac{\sqrt{3} \mathfrak{k}i - 1}{2} \right)}{9 \left(\frac{\sqrt{199} - 7}{2 \cdot 3^{3/2}} - \frac{1}{54} \right)^{1/3}} + \frac{7}{3}, \left(\frac{\sqrt{199} - 7}{2 \cdot 3^{3/2}} - \frac{1}{54} \right)^{1/3} \right. \\
 & \left. \frac{11}{9 \left(\frac{\sqrt{199} - 7}{2 \cdot 3^{3/2}} - \frac{1}{54} \right)^{1/3}} + \frac{7}{3} \right] J, [1, 1, 1, 1]]
 \end{aligned}$$

Autovectores :

$$\begin{aligned}
 (\#o16) \quad & \left[\left[-\frac{11 \left(\frac{\sqrt{3} \mathfrak{k}i - 1}{2} \right)}{9 \left(\frac{\sqrt{199} - 7}{2 \cdot 3^{3/2}} - \frac{1}{54} \right)^{1/3}} + \left(\frac{\sqrt{199} - 7}{2 \cdot 3^{3/2}} - \frac{1}{54} \right)^{1/3} \left(-\frac{\sqrt{3} \mathfrak{k}i - 1}{2} \right) + \frac{7}{3}, \left(\frac{\sqrt{199} - 7}{2 \cdot 3^{3/2}} - \frac{1}{54} \right)^{1/3} \left(\frac{\sqrt{3} \mathfrak{k}i - 1}{2} \right) - \frac{11 \left(-\frac{\sqrt{3} \mathfrak{k}i - 1}{2} \right)}{9 \left(\frac{\sqrt{199} - 7}{2 \cdot 3^{3/2}} - \frac{1}{54} \right)^{1/3}} + \frac{7}{3}, \left(\frac{\sqrt{199} - 7}{2 \cdot 3^{3/2}} - \frac{1}{54} \right)^{1/3} \right. \\
 & \left. \frac{11}{9 \left(\frac{\sqrt{199} - 7}{2 \cdot 3^{3/2}} - \frac{1}{54} \right)^{1/3}} + \frac{7}{3} \right] J, [1, 1, 1, 1]], \left[\left[\left(3^{5/2} \left(\frac{\sqrt{199} - 7}{2 \cdot 3^{3/2}} - \frac{1}{54} \right)^{2/3} + 11 \sqrt{3} \right) \mathfrak{k}i + 9 \left(\frac{\sqrt{199} - 7}{2 \cdot 3^{3/2}} - \frac{1}{54} \right)^{2/3} - 6 \left(\frac{\sqrt{199} - 7}{2 \cdot 3^{3/2}} - \frac{1}{54} \right)^{1/3} - 11 \right. \right. \\
 & \left. \left. \frac{11}{9 \left(\frac{\sqrt{199} - 7}{2 \cdot 3^{3/2}} - \frac{1}{54} \right)^{1/3}} + \frac{7}{3} \right] J, [1, 1, 1, 1]], \left[\left[\left(3^{5/2} \left(\frac{\sqrt{199} - 7}{2 \cdot 3^{3/2}} - \frac{1}{54} \right)^{2/3} + 11 \sqrt{3} \right) \mathfrak{k}i + 9 \left(\frac{\sqrt{199} - 7}{2 \cdot 3^{3/2}} - \frac{1}{54} \right)^{2/3} - 6 \left(\frac{\sqrt{199} - 7}{2 \cdot 3^{3/2}} - \frac{1}{54} \right)^{1/3} - 11 \right. \right. \\
 & \left. \left(3 \cdot 2^{4/3} \sqrt{199} - 19 \cdot 2^{7/3} \sqrt{3} \right) \left(3^{3/2} \sqrt{199} - 7 \right)^{2/3} + \left(33 \cdot 2^{2/3} \sqrt{199} + 187 \cdot 2^{2/3} \sqrt{3} \right) \left(3^{3/2} \sqrt{199} - 7 \right)^{1/3} \right) \mathfrak{k}i + \left(19 \cdot 2^{7/3} - 2^{4/3} \sqrt{3} \sqrt{199} \right) \left(3^{3/2} \sqrt{199} - 7 \right)^{2/3} + \\
 & \left. \left(11 \cdot 2^{2/3} \sqrt{3} \sqrt{199} + 187 \cdot 2^{2/3} \right) \left(3^{3/2} \sqrt{199} - 7 \right)^{1/3} - 1936 \right) / 2904 \right] J, [1, 1, 1, 1], -\frac{\left(3^{5/2} \left(\frac{\sqrt{199} - 7}{2 \cdot 3^{3/2}} - \frac{1}{54} \right)^{2/3} + 11 \sqrt{3} \right) \mathfrak{k}i - 9 \left(\frac{\sqrt{199} - 7}{2 \cdot 3^{3/2}} - \frac{1}{54} \right)^{2/3} + 6 \left(\frac{\sqrt{199} - 7}{2 \cdot 3^{3/2}} - \frac{1}{54} \right)^{1/3} + 11}{18 \left(\frac{\sqrt{199} - 7}{2 \cdot 3^{3/2}} - \frac{1}{54} \right)^{1/3}}, \\
 & - \left(\left(3 \cdot 2^{4/3} \sqrt{199} - 19 \cdot 2^{7/3} \sqrt{3} \right) \left(3^{3/2} \sqrt{199} - 7 \right)^{2/3} + \left(33 \cdot 2^{2/3} \sqrt{199} + 187 \cdot 2^{2/3} \sqrt{3} \right) \left(3^{3/2} \sqrt{199} - 7 \right)^{1/3} \right) \mathfrak{k}i + \left(2^{4/3} \sqrt{3} \sqrt{199} - 19 \cdot 2^{7/3} \right) \\
 & \left. \left(3^{3/2} \sqrt{199} - 7 \right)^{2/3} + \left(-11 \cdot 2^{2/3} \sqrt{3} \sqrt{199} - 187 \cdot 2^{2/3} \right) \left(3^{3/2} \sqrt{199} - 7 \right)^{1/3} + 1936 \right) / 2904 \right] J, [1, 1, 1, 1], -\frac{9 \left(\frac{\sqrt{199} - 7}{2 \cdot 3^{3/2}} - \frac{1}{54} \right)^{2/3} + 3 \left(\frac{\sqrt{199} - 7}{2 \cdot 3^{3/2}} - \frac{1}{54} \right)^{1/3} - 11}{9 \left(\frac{\sqrt{199} - 7}{2 \cdot 3^{3/2}} - \frac{1}{54} \right)^{1/3}}, \\
 & \left. \frac{\left(2^{4/3} \sqrt{3} \sqrt{199} - 19 \cdot 2^{7/3} \right) \left(3^{3/2} \sqrt{199} - 7 \right)^{2/3} + \left(-11 \cdot 2^{2/3} \sqrt{3} \sqrt{199} - 187 \cdot 2^{2/3} \right) \left(3^{3/2} \sqrt{199} - 7 \right)^{1/3} - 968}{1452} \right] J, [1, 1, 1, 1]]
 \end{aligned}$$