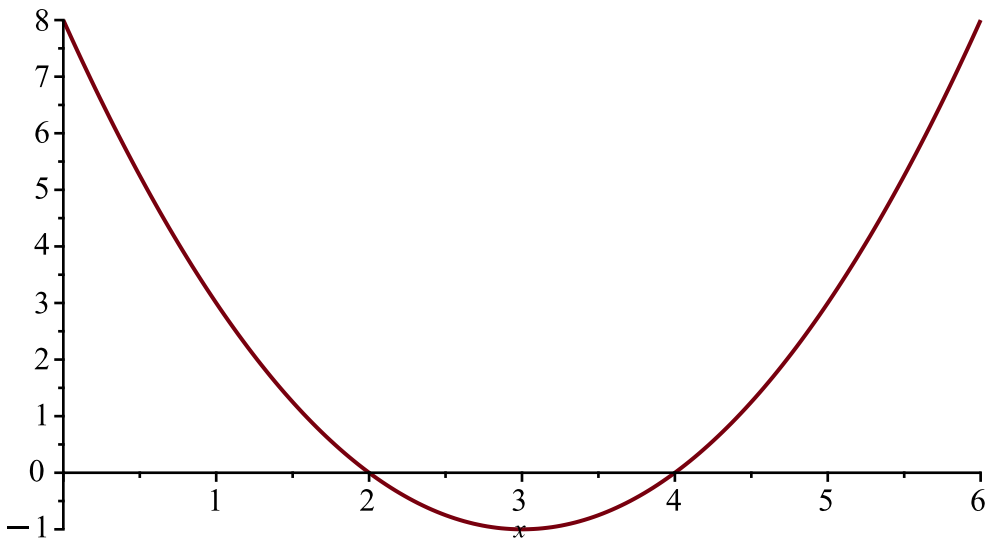


```

> restart
> Ecuacion := x^2 - 6·x + 8 = 0 : PrimerLado := lhs(Ecuacion); SegundoLado := rhs(Ecuacion)
    PrimerLado := x^2 - 6 x + 8
    SegundoLado := 0
(1)

> plot(PrimerLado, x = 0 .. 6)

> Raiz := solve(Ecuacion)
    Raiz := 4, 2
(2)

> NuevaEcuacion := expand((x - Raiz[1]) · (x - Raiz[2])) = 0
    NuevaEcuacion := x^2 - 6 x + 8 = 0
(3)

> restart
> evalf(pi)
    π
(4)

> evalf(PI)
    Π
(5)

> evalf(Pi)
    3.141592654
(6)

> evalf(Pi, 50)
    3.1415926535897932384626433832795028841971693993751
(7)

> Digits := 20
    Digits := 20
(8)

> evalf(Pi)
    3.1415926535897932385
(9)

> a := sqrt(3)
    a := √3
(10)

> evalf(a)
    1.7320508075688772935
(11)

> b := exp(1)

```

	$b := e$	(12)
> evalf(%)	2.7182818284590452354	(13)
> evalf(%%, 5)	1.7321	(14)
> $c := 3 + 2I$	$c := 3 + 2I$	(15)
> Re( $c$ )	3	(16)
> Im( $c$ )	2	(17)
> evalf( $\hat{F}$ )	-1.	(18)
> exp( $\text{Pi} \cdot I$ )	-1	(19)
Esto es un comentario que no se procesa		
> $AA := \text{array}([ [1, 2, 3], [4, -5, 6], [7, 8, 9] ])$	$AA := \begin{bmatrix} 1 & 2 & 3 \\ 4 & -5 & 6 \\ 7 & 8 & 9 \end{bmatrix}$	(20)
> with(linalg) :		
> $Valor := \det(AA)$	$Valor := 120$	(21)
> evalm( $AA$ )	$\begin{bmatrix} 1 & 2 & 3 \\ 4 & -5 & 6 \\ 7 & 8 & 9 \end{bmatrix}$	(22)
> $Inversa := \text{inverse}(AA)$	$Inversa := \begin{bmatrix} -\frac{31}{40} & \frac{1}{20} & \frac{9}{40} \\ \frac{1}{20} & -\frac{1}{10} & \frac{1}{20} \\ \frac{67}{120} & \frac{1}{20} & -\frac{13}{120} \end{bmatrix}$	(23)
> $Identidad := \text{evalm}(AA \&* Inversa)$		(24)

$$Identidad := \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix} \quad (24)$$

$$\begin{aligned} &> \text{Valores} := \text{solve}(\det(AA - \text{lambda} \cdot \text{Identidad}) = 0, \text{lambda}) : \text{Valores}[1] : \text{evalf}(\%, 3); \\ &\quad \text{Valores}[2] : \text{evalf}(\%, 3); \text{Valores}[3] : \text{evalf}(\%, 3) \\ &\quad 14.1 - 0.01 I \\ &\quad -7.94 - 0.0230 I \\ &\quad -1.10 + 0.0290 I \end{aligned} \quad (25)$$

$$\begin{aligned} &> \text{EcuacionCaracteristica} := \text{simplify}(\text{expand}((x - \text{Valores}[1]) \cdot (x - \text{Valores}[2]) \cdot (x \\ &\quad - \text{Valores}[3])) = 0) \\ &\quad \text{EcuacionCaracteristica} := x^3 - 5x^2 - 118x - 120 = 0 \end{aligned} \quad (26)$$

$$> \text{evalf}(\text{Pi}, 10000) :$$

$$> \text{restart}$$

### SOLUCIONES SINGULARES

$$\begin{aligned} &> \text{Ecua} := 2 \cdot y \cdot (y' + 2) - x \cdot (y')^2 = 0 \\ &\quad \text{Ecua} := 2y(x) \left( \frac{d}{dx} y(x) + 2 \right) - x \left( \frac{d}{dx} y(x) \right)^2 = 0 \end{aligned} \quad (27)$$

$$\begin{aligned} &> \text{Soluciones} := \text{dsolve}(\text{Ecua}) \\ &\quad \text{Soluciones} := y(x) = -4x, y(x) = 0, y(x) = \frac{x(-x + 2c_1)^2}{2c_1^2 \left( -\frac{-x + 2c_1}{c_1} + 2 \right)} \end{aligned} \quad (28)$$

$$\begin{aligned} &> \text{Soluciones}[1] \\ &\quad y(x) = -4x \end{aligned} \quad (29)$$

$$\begin{aligned} &> \text{Soluciones}[2] \\ &\quad y(x) = 0 \end{aligned} \quad (30)$$

$$\begin{aligned} &> \text{simplify}(\text{Soluciones}[3]) \\ &\quad y(x) = \frac{(x - 2c_1)^2}{2c_1} \end{aligned} \quad (31)$$

$$\begin{aligned} &> \text{SolGral} := y(x) = \frac{(C - x)^2}{C} \\ &\quad \text{SolGral} := y(x) = \frac{(C - x)^2}{C} \end{aligned} \quad (32)$$

$$\begin{aligned} &> \text{ComprobarCero} := \text{simplify}(\text{eval}(\text{subs}(y(x) = \text{rhs}(\text{SolGral}), \text{Ecua}))) \\ &\quad \text{ComprobarCero} := 0 = 0 \end{aligned} \quad (33)$$

$$\begin{aligned} &> \text{SolPartUno} := \text{subs}(C = 1, \text{SolGral}) \\ &\quad \text{SolPartUno} := y(x) = (1 - x)^2 \end{aligned} \quad (34)$$

$$\begin{aligned} &> \text{SolPartDos} := \text{subs}(C = -3, \text{SolGral}) \\ &\quad \text{SolPartDos} := y(x) = \frac{(x + 3)^2}{-3} \end{aligned} \quad (35)$$

$$\text{SolPartDos} := y(x) = -\frac{(-3-x)^2}{3} \quad (35)$$

> *SolPartTres* := subs(*C* = sqrt(3), *SolGral*)

$$\text{SolPartTres} := y(x) = \frac{(\sqrt{3}-x)^2 \sqrt{3}}{3} \quad (36)$$

> *ComprobarUno* := simplify(eval(subs(*y*(*x*) = rhs(*SolPartUno*), *Ecua*)))

$$\text{ComprobarUno} := 0 = 0 \quad (37)$$

> *ComprobarDos* := simplify(eval(subs(*y*(*x*) = rhs(*SolPartDos*), *Ecua*)))

$$\text{ComprobarDos} := 0 = 0 \quad (38)$$

> *ComprobarTres* := simplify(eval(subs(*y*(*x*) = rhs(*SolPartTres*), *Ecua*)))

$$\text{ComprobarTres} := 0 = 0 \quad (39)$$

> *SolSingularUno* := *y*(*x*) = -4·*x*

$$\text{SolSingularUno} := y(x) = -4x \quad (40)$$

> *ComprobarCuatro* := simplify(eval(subs(*y*(*x*) = rhs(*SolSingularUno*), *Ecua*)))

$$\text{ComprobarCuatro} := 0 = 0 \quad (41)$$

> *SolSingularDos* := *y*(*x*) = 0

$$\text{SolSingularDos} := y(x) = 0 \quad (42)$$

> *ComprobarCinco* := simplify(eval(subs(*y*(*x*) = rhs(*SolSingularDos*), *Ecua*)))

$$\text{ComprobarCinco} := 0 = 0 \quad (43)$$

> *ConstanteTres* := solve(rhs(*SolGral*) = rhs(*SolPartTres*), *C*) : *ConstanteTres*[2]

$$\sqrt{3} \quad (44)$$

> *ConstanteSingular* := solve(rhs(*SolGral*) = rhs(*SolSingularUno*), *C*) : *ConstanteSingular*[1];  
*ConstanteSingular*[2];

$$-x$$

$$-x$$

$$(45)$$

> restart

>

>

>