

```

[> restart
Este renglón sólo tendrá comentarios no ejecutables
[> a := sqrt(2) : b := evalf(a); c := evalf(a, 50)
                                b := 1.414213562
                                c := 1.4142135623730950488016887242096980785696718753769 (1)
[> a; d := b + 0.000000000000001 : evalf(d, 30); c;
                                sqrt(2)
                                1.414213562
                                1.4142135623730950488016887242096980785696718753769 (2)
[> evalf(Pi)
                                3.141592654 (3)
[> evalf(pi)
                                pi (4)
[> evalf(PI)
                                Π (5)
[> evalf(Pi, 100)
3.1415926535897932384626433832795028841971693993751058209749445923078164062862\ (6)
08998628034825342117068
[> evalf(Pi, 500)
3.1415926535897932384626433832795028841971693993751058209749445923078164062862\ (7)
08998628034825342117067982148086513282306647093844609550582231725359408128\
48111745028410270193852110555964462294895493038196442881097566593344612847\
56482337867831652712019091456485669234603486104543266482133936072602491412\
73724587006606315588174881520920962829254091715364367892590360011330530548\
82046652138414695194151160943305727036575959195309218611738193261179310511\
85480744623799627495673518857527248912279381830119491
[> evalf(Pi, 1000)
3.1415926535897932384626433832795028841971693993751058209749445923078164062862\ (8)
08998628034825342117067982148086513282306647093844609550582231725359408128\
48111745028410270193852110555964462294895493038196442881097566593344612847\
56482337867831652712019091456485669234603486104543266482133936072602491412\
73724587006606315588174881520920962829254091715364367892590360011330530548\
82046652138414695194151160943305727036575959195309218611738193261179310511\
85480744623799627495673518857527248912279381830119491298336733624406566430\
86021394946395224737190702179860943702770539217176293176752384674818467669\
40513200056812714526356082778577134275778960917363717872146844090122495343\
01465495853710507922796892589235420199561121290219608640344181598136297747\
71309960518707211349999998372978049951059731732816096318595024459455346908\
30264252230825334468503526193118817101000313783875288658753320838142061717\
76691473035982534904287554687311595628638823537875937519577818577805321712\
26806613001927876611195909216420199
[> restart

```

```
> Ecuacion := x·3 - 6·x·2 + 12·x - 18 = 0
```

$$Ecuacion := x^3 - 6x^2 + 12x - 18 = 0 \quad (9)$$

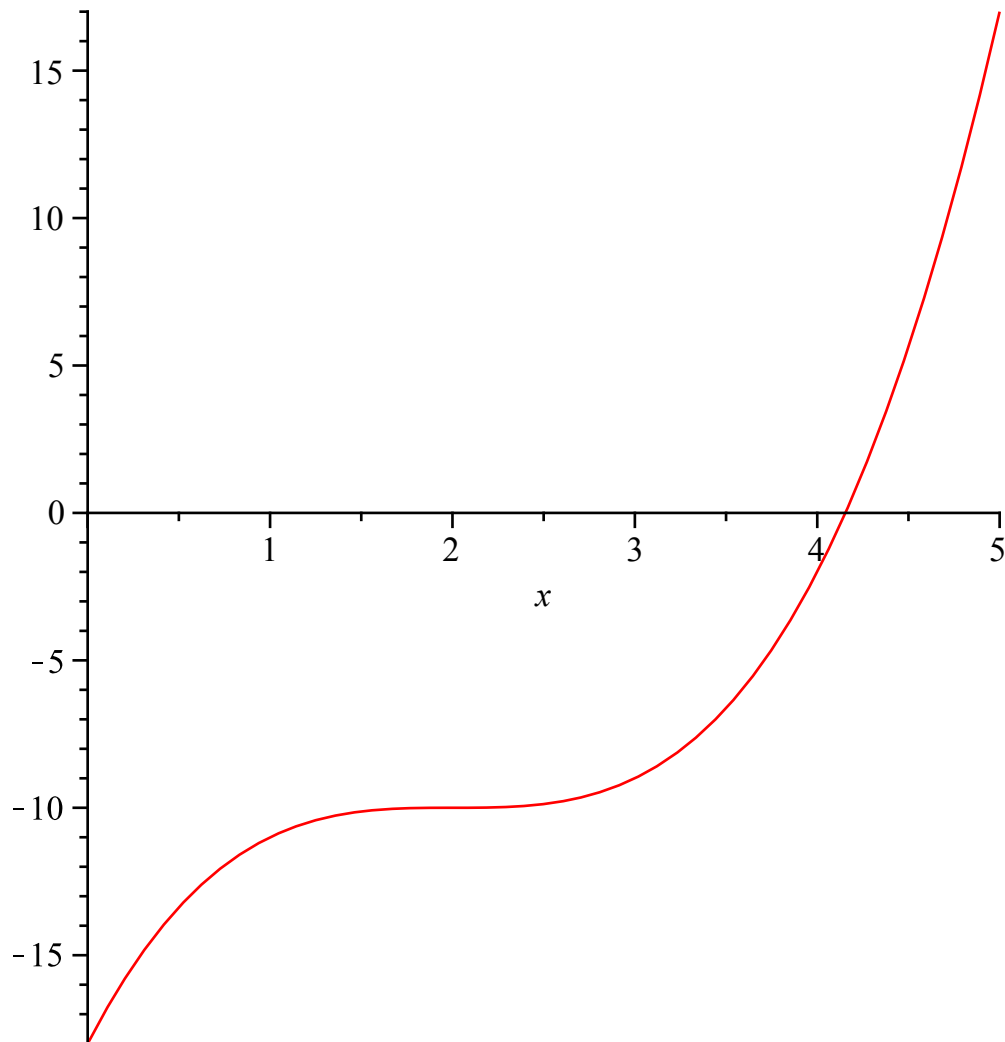
```
> rhs(Ecuacion)
```

$$0 \quad (10)$$

```
> lhs(Ecuacion)
```

$$x^3 - 6x^2 + 12x - 18 \quad (11)$$

```
> plot(lhs(Ecuacion), x=0..5)
```



```
> ?solve
```

```
> Soluciones := solve(Ecuacion) : Soluciones1; evalf(%); Soluciones2; evalf(%); Soluciones3; evalf(%)
```

$$\begin{aligned} &10^{1/3} + 2 \\ &4.154434690 \\ &-\frac{1}{2} 10^{1/3} + \frac{1}{2} i\sqrt{3} 10^{1/3} + 2 \\ &0.922782655 + 1.865795173 i \\ &-\frac{1}{2} 10^{1/3} - \frac{1}{2} i\sqrt{3} 10^{1/3} + 2 \end{aligned}$$

(12)

$$0.922782655 - 1.865795173 I \quad (12)$$

> Ecuacion

$$x^3 - 6x^2 + 12x - 18 = 0 \quad (13)$$

> Soluciones₁; Soluciones₂; Soluciones₃;

$$\begin{aligned} & 10^{1/3} + 2 \\ & -\frac{1}{2} 10^{1/3} + \frac{1}{2} I\sqrt{3} 10^{1/3} + 2 \\ & -\frac{1}{2} 10^{1/3} - \frac{1}{2} I\sqrt{3} 10^{1/3} + 2 \end{aligned} \quad (14)$$

> EcuacionOriginal := expand((x - Soluciones₁) · (x - Soluciones₂) · (x - Soluciones₃)) = 0

$$EcuacionOriginal := x^3 - 6x^2 + 12x - 18 = 0 \quad (15)$$

> restart

> Sistema := 2·x + 3·y = 5, x + 4·y = -8 : Sistema₁; Sistema₂;

$$\begin{aligned} & 2x + 3y = 5 \\ & x + 4y = -8 \end{aligned} \quad (16)$$

> Raiz := solve({Sistema}, {x, y})

$$Raiz := \left\{ x = \frac{44}{5}, y = -\frac{21}{5} \right\} \quad (17)$$

> Raiz₁

$$x = \frac{44}{5} \quad (18)$$

> Raiz₂

$$y = -\frac{21}{5} \quad (19)$$

> Comprobacion₁ := subs(x = rhs(Raiz₁), y = rhs(Raiz₂), lhs(Sistema₁) - rhs(Sistema₁) = 0)

$$Comprobacion_1 := 0 = 0 \quad (20)$$

> Comprobacion₂ := subs(x = rhs(Raiz₁), y = rhs(Raiz₂), lhs(Sistema₂) - rhs(Sistema₂) = 0)

$$Comprobacion_2 := 0 = 0 \quad (21)$$

> restart

> ResolverIntegral := Int(x · 2 · exp(2 · x) · cos(2 · x), x = 1 .. 2) = int(x · 2 · exp(2 · x) · cos(2 · x), x = 1 .. 2); lhs(%) = evalf(rhs(%))

$$\begin{aligned} ResolverIntegral := & \int_1^2 x^2 e^{2x} \cos(2x) \, dx = -\frac{3}{16} e^2 \cos(2) - \frac{1}{16} e^2 \sin(2) + \frac{15}{16} e^4 \cos(4) \\ & + \frac{9}{16} e^4 \sin(4) \end{aligned}$$

$$\int_1^2 x^2 e^{2x} \cos(2x) \, dx = -56.54313660 \quad (22)$$

> lhs(ResolverIntegral)

$$(23)$$

$$\int_1^2 x^2 e^{2x} \cos(2x) dx \quad (23)$$

> rhs(ResolverIntegral)

$$-\frac{3}{16} e^2 \cos(2) - \frac{1}{16} e^2 \sin(2) + \frac{15}{16} e^4 \cos(4) + \frac{9}{16} e^4 \sin(4) \quad (24)$$

> restart

> AA := array([[3, 4], [2, 5]])

$$AA := \begin{bmatrix} 3 & 4 \\ 2 & 5 \end{bmatrix} \quad (25)$$

> with(linalg);

[BlockDiagonal, GramSchmidt, JordanBlock, LUdecomp, QRdecomp, Wronskian, addcol, addrow, adj, adjoint, angle, augment, backsub, band, basis, bezout, blockmatrix, charmat, charpoly, cholesky, col, coldim, colspace, colspan, companion, concat, cond, copyinto, crossprod, curl, definite, delcols, delrows, det, diag, diverge, dotprod, eigenvals, eigenvalues, eigenvectors, eigenvects, entermatrix, equal, exponential, extend, ffgausselim, fibonacci, forwardsub, frobenius, gausselim, gaussjord, geneqns, genmatrix, grad, hadamard, hermite, hessian, hilbert, htranspose, ihermite, indexfunc, innerprod, intbasis, inverse, ismith, issimilar, iszero, jacobian, jordan, kernel, laplacian, leastsqs, linsolve, matadd, matrix, minor, minpoly, mulcol, mulrow, multiply, norm, normalize, nullspace, orthog, permanent, pivot, potential, randmatrix, randvector, rank, ratform, row, rowdim, rowspace, rowspan, rref, scalarmul, singularvals, smith, stackmatrix, submatrix, subvector, sumbasis, swapcol, swaprow, sylveste, toeplitz, trace, transpose, vandermonde, vecpotent, vectdim, vector, wronskian] (26)

> InversaAA := inverse(AA)

$$InversaAA := \begin{bmatrix} \frac{5}{7} & -\frac{4}{7} \\ -\frac{2}{7} & \frac{3}{7} \end{bmatrix} \quad (27)$$

> Identidad := evalm(AA &* InversaAA)

$$Identidad := \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix} \quad (28)$$

> Valor := det(AA)

$$Valor := 7 \quad (29)$$

>
>
>
>