> *restart*

> *EcuacionAlgebraica* := $x^2 - 5 \cdot x + 6 = 0$; *Raiz* := *solve*(*EcuacionAlgebraica*);

$$EcuacionAlgebraica := x^2 - 5x + 6 = 0$$

$$Raiz := 3, 2 \qquad \text{(1)}$$

Forma de explicar el título de una expresión matemática

> *ComprobarUno* := *subs*($x = Raiz[1]$, *EcuacionAlgebraica*)

$$ComprobarUno := 0 = 0 \qquad \text{(2)}$$

> *ComprobarDos* := *subs*($x = Raiz[2]$, *EcuacionAlgebraica*)

$$ComprobarDos := 0 = 0 \qquad \text{(3)}$$

> *Raiz*[1]

$$3 \qquad \text{(4)}$$

> *Raiz*[2]

$$2 \qquad \text{(5)}$$

> *EcuacionParalela* := *expand*(($x - Raiz[1]$) $\cdot$ ($x - Raiz[2]$)) = 0

$$EcuacionParalela := x^2 - 5x + 6 = 0 \qquad \text{(6)}$$

> *plot*(*lhs*(*EcuacionParalela*), $x = -1..5$)
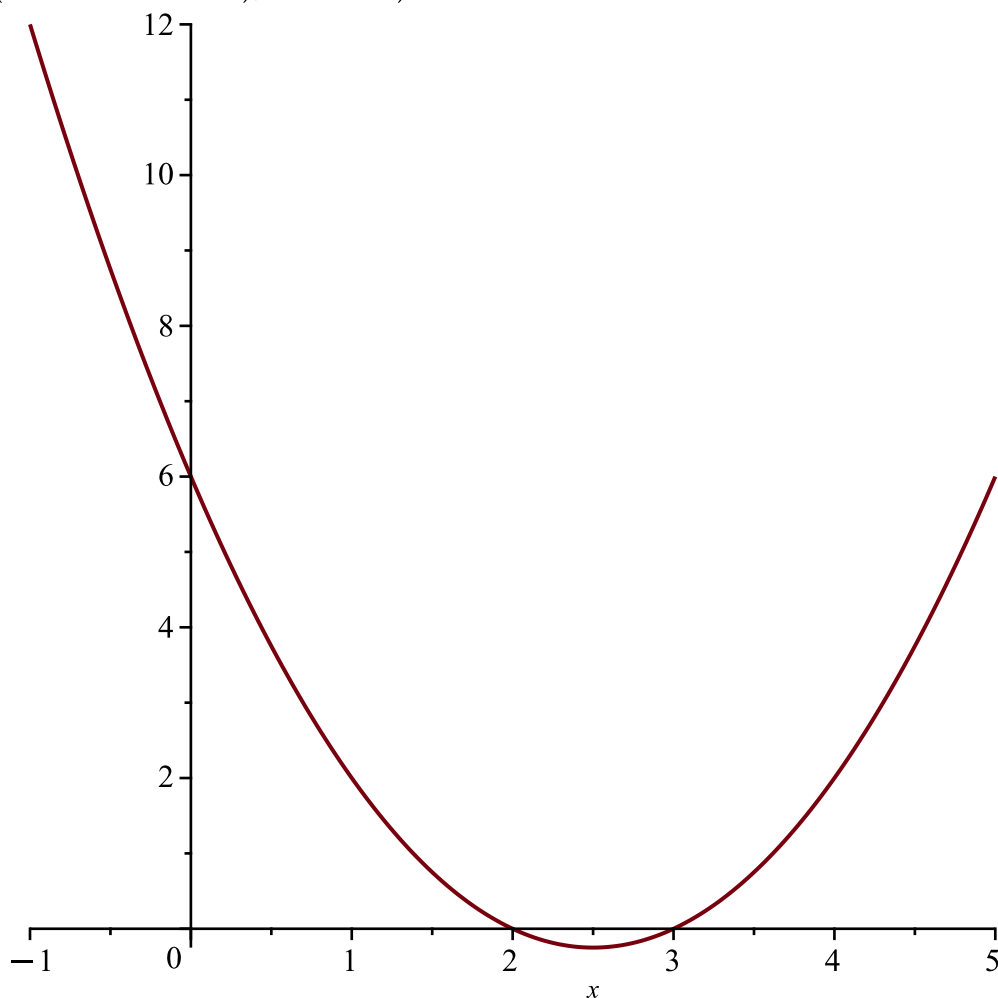
> *rhs*(*EcuacionParalela*)

$$0 \qquad \text{(7)}$$

> $lhs(EcuacionParalela)$

$$x^2 - 5x + 6 \tag{8}$$

> $EcuacionAlgebraica$

$$x^2 - 5x + 6 = 0 \tag{9}$$

> $DerivadaEcuacion := diff(lhs(EcuacionAlgebraica), x)$

$$DerivadaEcuacion := 2x - 5 \tag{10}$$

> $IntegralEcuacionIndefinida := int(lhs(EcuacionAlgebraica), x)$

$$IntegralEcuacionIndefinida := \frac{1}{3}x^3 - \frac{5}{2}x^2 + 6x \tag{11}$$
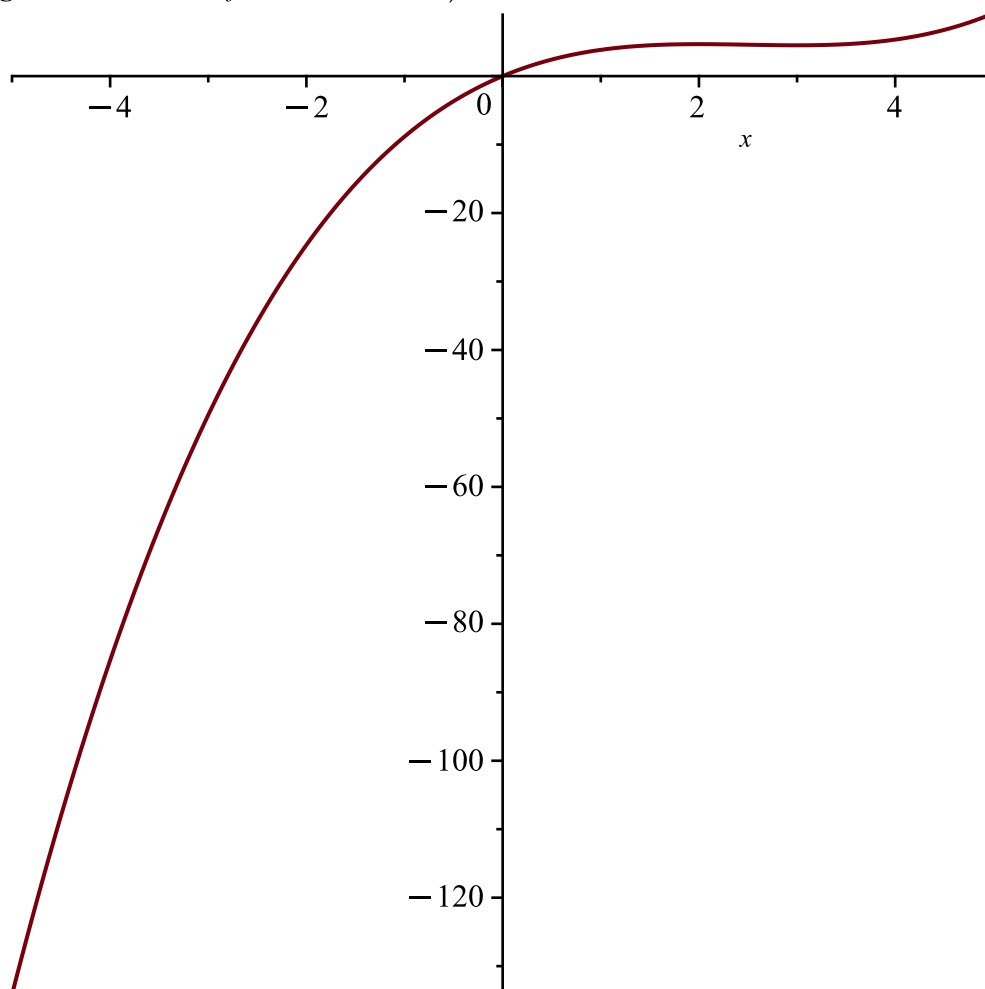
> $IntegralEcuacionDefinida := int(lhs(EcuacionAlgebraica), x = -5 .. 5)$

$$IntegralEcuacionDefinida := \frac{430}{3} \tag{12}$$

> $plot(IntegralEcuacionIndefinida, x = -5 .. 5)$

> $RaizIntegral := solve(IntegralEcuacionIndefinida); evalf(\%, 5)$

$$RaizIntegral := 0, \frac{15}{4} + \frac{3\,I\sqrt{7}}{4}, \frac{15}{4} - \frac{3\,I\sqrt{7}}{4}$$

$$0., 3.7500 + 1.9844\,I, 3.7500 - 1.9844\,I \tag{13}$$

> $ParteRealRaiz := Re(RaizIntegral[2]); evalf(\%, 5)$

$$ParteRealRaiz := \frac{15}{4}$$

$$3.7500 \tag{14}$$

> $OarteImaginariaRaiz := \mathrm{Im}(RaizIntegral[2]);\ evalf(\%, 5)$

$$OarteImaginariaRaiz := \frac{3\sqrt{7}}{4}$$

$$1.9844 \tag{15}$$

> $with(linalg)$

$[BlockDiagonal, GramSchmidt, JordanBlock, LUdecomp, QRdecomp, Wronskian, addcol,$ $\quad(16)$
$\quad addrow, adj, adjoint, angle, augment, backsub, band, basis, bezout, blockmatrix, charmat,$
$\quad charpoly, cholesky, col, coldim, colspace, colspan, companion, concat, cond, copyinto,$
$\quad crossprod, curl, definite, delcols, delrows, det, diag, diverge, dotprod, eigenvals, eigenvalues,$
$\quad eigenvectors, eigenvects, entermatrix, equal, exponential, extend, ffgausselim, fibonacci,$
$\quad forwardsub, frobenius, gausselim, gaussjord, geneqns, genmatrix, grad, hadamard, hermite,$
$\quad hessian, hilbert, htranspose, ihermite, indexfunc, innerprod, intbasis, inverse, ismith, issimilar,$
$\quad iszero, jacobian, jordan, kernel, laplacian, leastsqrs, linsolve, matadd, matrix, minor, minpoly,$
$\quad mulcol, mulrow, multiply, norm, normalize, nullspace, orthog, permanent, pivot, potential,$
$\quad randmatrix, randvector, rank, ratform, row, rowdim, rowspace, rowspan, rref, scalarmul,$
$\quad singularvals, smith, stackmatrix, submatrix, subvector, sumbasis, swapcol, swaprow, sylvester,$
$\quad toeplitz, trace, transpose, vandermonde, vecpotent, vectdim, vector, wronskian]$

> $AA := array([[1, 2, 3], [4, -5, 6], [7, 8, 9]])$

$$AA := \begin{bmatrix} 1 & 2 & 3 \\ 4 & -5 & 6 \\ 7 & 8 & 9 \end{bmatrix} \tag{17}$$

> $DeterminanteAA := det(AA)$

$$DeterminanteAA := 120 \tag{18}$$

> $InversaAA := inverse(AA)$

$$InversaAA := \begin{bmatrix} -\dfrac{31}{40} & \dfrac{1}{20} & \dfrac{9}{40} \\[2mm] \dfrac{1}{20} & -\dfrac{1}{10} & \dfrac{1}{20} \\[2mm] \dfrac{67}{120} & \dfrac{1}{20} & -\dfrac{13}{120} \end{bmatrix} \tag{19}$$

> $Identidad := evalm(AA\ \&^{*}\ InversaAA)$

$$Identidad := \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix} \tag{20}$$

> *restart*

> *evalf* (PI)

$$\Pi \tag{21}$$

> *evalf* (pi)

$$\pi \tag{22}$$

> *CtePi* := *evalf* (Pi, 100)

$$CtePi := \tag{23}$$
    3.1415926535897932384626433832795028841971693993751058209749445923078164062\
    0899862803482534211706820

> *CteE* := *evalf* (exp(1))

$$CteE := 2.718281828 \tag{24}$$

> *Raiz* := *evalf* (exp(*CtePi*·*I*)) : Re(*Raiz*)

$$-1. \tag{25}$$

> *restart*

> *DiaSemana* := *array*([*lunes, martes, miércoles, jueves, viernes, sábado, domingo*])

$$DiaSemana := \begin{bmatrix} lunes & martes & miércoles & jueves & viernes & sábado & domingo \end{bmatrix} \tag{26}$$

> *DiaSemana*[1]

$$lunes \tag{27}$$

> *DiaSemana*[7]

$$domingo \tag{28}$$

> *with*(*DEtools*)

[*AreSimilar, Closure, DEnormal, DEplot, DEplot3d, DEplot_polygon, DFactor, DFactorLCLM,* (29)
    DFactorsols, Dchangevar, Desingularize, FindODE, FunctionDecomposition, GCRD, Gosper,
    Heunsols, Homomorphisms, IVPsol, IsHyperexponential, LCLM, MeijerGsols,
    MultiplicativeDecomposition, ODEInvariants, PDEchangecoords, PolynomialNormalForm,
    RationalCanonicalForm, ReduceHyperexp, RiemannPsols, Xchange, Xcommutator, Xgauge,
    Zeilberger, abelsol, adjoint, autonomous, bernoullisol, buildsol, buildsym, canoni, caseplot,
    casesplit, checkrank, chinisol, clairautsol, constcoeffsols, convertAlg, convertsys,
    dalembertsol, dcoeffs, de2diffop, dfieldplot, diff_table, diffop2de, dperiodic_sols, dpolyform,
    dsubs, eigenring, endomorphism_charpoly, equinv, eta_k, eulersols, exactsol, expsols,
    exterior_power, firint, firtest, formal_sol, gen_exp, generate_ic, genhomosol, gensys,
    hamilton_eqs, hypergeometricsols, hypergeomsols, hyperode, indicialeq, infgen, initialdata,
    integrate_sols, intfactor, invariants, kovacicsols, leftdivision, liesol, line_int, linearsol,
    matrixDE, matrix_riccati, maxdimsystems, moser_reduce, muchange, mult, mutest,
    newton_polygon, normalG2, ode_int_y, ode_y1, odeadvisor, odepde, parametricsol,
    particularsol, phaseportrait, poincare, polysols, power_equivalent, rational_equivalent,
    ratsols, redode, reduceOrder, reduce_order, regular_parts, regularsp, remove_RootOf,
    riccati_system, riccatisol, rifread, rifsimp, rightdivision, rtaylor, separablesol, singularities,
    solve_group, super_reduce, symgen, symmetric_power, symmetric_product, symtest, transinv,

translate, untranslate, varparam, zoom]

> *with*(*plots*)

[*animate, animate3d, animatecurve, arrow, changecoords, complexplot, complexplot3d,* **(30)**

　　conformal, conformal3d, contourplot, contourplot3d, coordplot, coordplot3d, densityplot,

　　display, dualaxisplot, fieldplot, fieldplot3d, gradplot, gradplot3d, implicitplot, implicitplot3d,

　　inequal, interactive, interactiveparams, intersectplot, listcontplot, listcontplot3d,

　　listdensityplot, listplot, listplot3d, loglogplot, logplot, matrixplot, multiple, odeplot, pareto,

　　plotcompare, pointplot, pointplot3d, polarplot, polygonplot, polygonplot3d,

　　polyhedra_supported, polyhedraplot, rootlocus, semilogplot, setcolors, setoptions,

　　setoptions3d, shadebetween, spacecurve, sparsematrixplot, surfdata, textplot, textplot3d,

　　tubeplot]

> *with*(*PDEtools*)

[*CanonicalCoordinates, ChangeSymmetry, CharacteristicQ, CharacteristicQInvariants,* **(31)**

　　ConservedCurrentTest, ConservedCurrents, ConsistencyTest, D_Dx, DeterminingPDE, Eta_k,

　　Euler, FirstIntegralSolver, FromJet, FunctionFieldSolutions, InfinitesimalGenerator,

　　Infinitesimals, IntegratingFactorTest, IntegratingFactors, InvariantEquation,

　　InvariantSolutions, InvariantTransformation, Invariants, Laplace, Library, PDEplot,

　　PolynomialSolutions, ReducedForm, SimilaritySolutions, SimilarityTransformation, Solve,

　　SymmetryCommutator, SymmetryGauge, SymmetrySolutions, SymmetryTest,

　　SymmetryTransformation, TWSolutions, ToJet, ToMissingDependentVariable, build, casesplit,

　　charstrip, dchange, dcoeffs, declare, diff_table, difforder, dpolyform, dsubs, mapde,

　　separability, splitstrip, splitsys, undeclare]

> *restart*

> *?solve*

> *?evalf*

> *?dsolve*

> *?restart*

> +