

> restart ;

> Ecuacion := diff(y(x), x\$2) - 3·diff(y(x), x) + 2·y(x) = 10·exp(3·x) - 18·exp(4·x);

$$Ecuacion := \frac{d^2}{dx^2} y(x) - 3 \left(\frac{d}{dx} y(x) \right) + 2 y(x) = 10 e^{3x} - 18 e^{4x} \quad (1)$$

> SolucionGeneral := simplify(expand(dsolve(Ecuacion)));

$$SolucionGeneral := y(x) = 5 e^{3x} - 3 e^{4x} + e^{2x} _C1 + e^x _C2 \quad (2)$$

> restart ;

METODO DE PARAMETROS VARIABLES

> Ecuacion := diff(y(x), x\$2) - 3·diff(y(x), x) + 2·y(x) = 10·exp(3·x) - 18·exp(4·x);

$$Ecuacion := \frac{d^2}{dx^2} y(x) - 3 \left(\frac{d}{dx} y(x) \right) + 2 y(x) = 10 e^{3x} - 18 e^{4x} \quad (3)$$

> EcuacionHomogenea := lhs(Ecuacion) = 0;

$$EcuacionHomogenea := \frac{d^2}{dx^2} y(x) - 3 \left(\frac{d}{dx} y(x) \right) + 2 y(x) = 0 \quad (4)$$

> Q(x) := rhs(Ecuacion);

$$Q(x) := 10 e^{3x} - 18 e^{4x} \quad (5)$$

> EcuacionCaracteristica := m·2 - 3·m + 2 = 0;

$$EcuacionCaracteristica := m^2 - 3 m + 2 = 0 \quad (6)$$

> Raiz := solve(EcuacionCaracteristica);

$$Raiz := 2, 1 \quad (7)$$

> Sol₁ := exp(Raiz₁·x); Sol₂ := exp(Raiz₂·x);

$$Sol_1 := e^{2x}$$

$$Sol_2 := e^x \quad (8)$$

> SolucionHomogenea := y(x) = C1·Sol₁ + C2·Sol₂;

$$SolucionHomogenea := y(x) = C1 e^{2x} + C2 e^x \quad (9)$$

> SolucionNoHomogenea := y(x) = A(x)·Sol₁ + B(x)·Sol₂;

$$SolucionNoHomogenea := y(x) = A(x) e^{2x} + B(x) e^x \quad (10)$$

> 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, leastsqrs, 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, sylvester, toeplitz, trace, transpose, vandermonde, vecpotent,

(11)

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[>
[>

vectdim, vector, wronskian]