

[> *restart*

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> Ecua := y'-sqrt(2)·y=0
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$$Ecu a := \frac{d}{dx} y(x) - \sqrt{2} y(x) = 0 \quad (1)$$

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[> SolGral := dsolve(Ecua)
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$$SolGral := y(x) = _C1 \, e^{\sqrt{2} \, x} \quad (2)$$

L *restart*

> $Ecua := y'' - 5y' + 6y = 0$

$$E_{cua} := \frac{d^2}{dx^2} y(x) - 5 \left(\frac{d}{dx} y(x) \right) + 6 y(x) = 0 \quad (3)$$

$$\textcolor{red}{\triangleright} \textit{EcuaCarac} := m^2 - 5\,m + 6 = 0$$

$$Ecuacarac := m^2 - 5m + 6 = 0 \quad (4)$$

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➤ Raiz := solve(EcuaCarac)
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$$Raiz := 3, 2 \tag{5}$$

$$\triangleright SolUno := \exp(Raiz[1] \cdot x); SolDos := \exp(Raiz[2] \cdot x)$$

$$SolUno := e^{3x}$$

$$SolDos := e^{2x} \quad (6)$$

[> *with(linalg)* :

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> WW := wronskian( [SolUno, SolDos], x)
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$$WW := \begin{bmatrix} e^{3x} & e^{2x} \\ 3e^{3x} & 2e^{2x} \end{bmatrix} \quad (7)$$

$$\textcolor{red}{\triangleright} \textit{Comp} := \det(WW) \neq 0$$

$$Comp := -e^{3x} e^{2x} \neq 0 \quad (8)$$

$$\text{SolGral} := y(x) = _C1 \cdot \text{SolUno} + _C2 \cdot \text{SolDos}$$

$$SolGral := y(x) = e^{2x} C_2 + e^{3x} C_1 \quad (9)$$

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> SolGralComp := dsolve(Ecua)
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$$SolGralComp := y(x) = _C1 e^{2x} + _C2 e^{3x} \quad (10)$$

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> $Ecu a := y'' - 4 y' + 4 y = 0$

$$E_{cua} := \frac{d^2}{dx^2} y(x) - 4 \left(\frac{d}{dx} y(x) \right) + 4 y(x) = 0 \quad (11)$$

$$\triangleright EcuaCarac := m^2 - 4m + 4 = 0$$

$$EcuaCarac := m^2 - 4 m + 4 = 0 \quad (12)$$

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> Raiz := solve(EcuaCarac)
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$$Raiz := 2, 2 \quad (13)$$

$$\triangleright SolUno := \exp(Raiz[1] \cdot x); SolDos := x \cdot \exp(Raiz[2] \cdot x)$$

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

$$SolDos := x e^{2x} \quad (14)$$

[> *with(linalg) :*

$$\begin{aligned} &> WW := \text{wronskian}([SolUno, SolDos], x) \\ &WW := \begin{bmatrix} e^{2x} & x e^{2x} \\ 2 e^{2x} & e^{2x} + 2 x e^{2x} \end{bmatrix} \end{aligned} \quad (15)$$

$$\begin{aligned} &> Comprobar := \det(WW) \neq 0 \\ &Comprobar := (e^{2x})^2 \neq 0 \end{aligned} \quad (16)$$

$$\begin{aligned} &> SolGral := y(x) = _C1 \cdot SolUno + _C2 \cdot SolDos \\ &SolGral := y(x) = x e^{2x} _C2 + e^{2x} _C1 \end{aligned} \quad (17)$$

comentario

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