

$$\begin{aligned}
 &> \text{restart} \\
 &> \text{EcuacionNoLineal} := 2 \cdot y(x) \cdot (\text{diff}(y(x), x) + 2) - x \cdot (\text{diff}(y(x), x)) \cdot 2 = 0 \\
 &\quad \text{EcuacionNoLineal} := 2 y(x) \left(\frac{d}{dx} y(x) + 2 \right) - x \left(\frac{d}{dx} y(x) \right)^2 = 0 \tag{1}
 \end{aligned}$$

$$\begin{aligned}
 &> \text{Solucion} := \text{dsolve}(\text{EcuacionNoLineal}) \\
 &\quad \text{Solucion} := y(x) = 0, y(x) = -4x, y(x) = \frac{1}{2} \frac{x(-x+2 \text{CI})^2}{-\text{CI}^2 \left(-\frac{-x+2 \text{CI}}{-\text{CI}} + 2 \right)} \tag{2}
 \end{aligned}$$

$$\begin{aligned}
 &> \text{Solucion}_1; \text{Solucion}_2; \text{simplify}(\text{Solucion}_3) \\
 &\quad y(x) = 0 \\
 &\quad y(x) = -4x \\
 &\quad y(x) = \frac{1}{2} \frac{(-x+2 \text{CI})^2}{-\text{CI}} \tag{3}
 \end{aligned}$$

$$\begin{aligned}
 &> \text{SolucionParticular} := y(x) = (1-x) \cdot 2 \\
 &\quad \text{SolucionParticular} := y(x) = (1-x)^2 \tag{4}
 \end{aligned}$$

$$\begin{aligned}
 &> \text{SolucionParticularDos} := y(x) = \frac{(-2-x) \cdot 2}{-2} \\
 &\quad \text{SolucionParticularDos} := y(x) = -\frac{1}{2} (-2-x)^2 \tag{5}
 \end{aligned}$$

$$\begin{aligned}
 &> \text{SolucionGeneral} := y(x) = \frac{(C_1-x) \cdot 2}{C_1} \\
 &\quad \text{SolucionGeneral} := y(x) = \frac{(C_1-x)^2}{C_1} \tag{6}
 \end{aligned}$$

$$\begin{aligned}
 &> \text{Comprobacion}_0 := \text{simplify}(\text{eval}(\text{subs}(y(x) = \text{rhs}(\text{SolucionGeneral}), \text{EcuacionNoLineal}))) \\
 &\quad \text{Comprobacion}_0 := 0 = 0 \tag{7}
 \end{aligned}$$

$$\begin{aligned}
 &> \text{Comprobacion}_1 := \text{simplify}(\text{eval}(\text{subs}(y(x) = \text{rhs}(\text{SolucionParticular}), \text{EcuacionNoLineal}))) \\
 &\quad \text{Comprobacion}_1 := 0 = 0 \tag{8}
 \end{aligned}$$

$$\begin{aligned}
 &> \text{Comprobacion}_2 := \text{simplify}(\text{eval}(\text{subs}(y(x) = \text{rhs}(\text{SolucionParticularDos}), \\
 &\quad \text{EcuacionNoLineal}))) \\
 &\quad \text{Comprobacion}_2 := 0 = 0 \tag{9}
 \end{aligned}$$

$$\begin{aligned}
 &> \text{Comprobacion}_3 := \text{simplify}(\text{eval}(\text{subs}(y(x) = \text{rhs}(\text{Solucion}_1), \text{EcuacionNoLineal}))) \\
 &\quad \text{Comprobacion}_3 := 0 = 0 \tag{10}
 \end{aligned}$$

$$\begin{aligned}
 &> \text{Comprobacion}_4 := \text{simplify}(\text{eval}(\text{subs}(y(x) = \text{rhs}(\text{Solucion}_2), \text{EcuacionNoLineal}))) \\
 &\quad \text{Comprobacion}_4 := 0 = 0 \tag{11}
 \end{aligned}$$

$$\begin{aligned}
 &> \text{EcuacionAlgebraicaUno} := \text{rhs}(\text{SolucionGeneral}) = \text{rhs}(\text{SolucionParticular}) \\
 &\quad \text{EcuacionAlgebraicaUno} := \frac{(C_1-x)^2}{C_1} = (1-x)^2 \tag{12}
 \end{aligned}$$

$$\begin{aligned}
 &> \text{ParametroUno} := \text{solve}(\text{EcuacionAlgebraicaUno}, C_1) \\
 &\quad \text{ParametroUno} := [C_1 = 1] \tag{13}
 \end{aligned}$$

$$\text{ParametroUno} := 1, x^2 \quad (13)$$

$$> \text{EcuacionAlgebraicaDos} := \text{rhs}(\text{SolucionGeneral}) = \text{rhs}(\text{SolucionParticularDos})$$

$$\text{EcuacionAlgebraicaDos} := \frac{(C_1 - x)^2}{C_1} = -\frac{1}{2} (-2 - x)^2 \quad (14)$$

$$> \text{ParametroDos} := \text{solve}(\text{EcuacionAlgebraicaDos}, C_1)$$

$$\text{ParametroDos} := -2, -\frac{1}{2} x^2 \quad (15)$$

$$> \text{EcuacionAlgebraicaTres} := \text{rhs}(\text{SolucionGeneral}) = \text{rhs}(\text{Solucion}_2)$$

$$\text{EcuacionAlgebraicaTres} := \frac{(C_1 - x)^2}{C_1} = -4x \quad (16)$$

$$> \text{ParametroTres} := \text{solve}(\text{EcuacionAlgebraicaTres}, C_1)$$

$$\text{ParametroTres} := -x, -x \quad (17)$$

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