

$$\begin{aligned}
& \text{restart} \\
& \text{Ecuacion} := 2 \cdot y \cdot (y' + 2) - x \cdot (y')^2 = 0 \\
& \text{Ecuacion} := 2 y(x) \left(\frac{d}{dx} y(x) + 2 \right) - x \left(\frac{d}{dx} y(x) \right)^2 = 0 \quad (1) \\
& \text{SolGral} := \text{dsolve}(\text{Ecuacion}) : \text{simplify}(\text{SolGral}[3]) \\
& y(x) = \frac{1}{2} \frac{(-x + 2 _CI)^2}{_CI} \quad (2) \\
& \text{DerSolGral} := \text{simplify}(\text{diff}(\text{SolGral}[3], x)) \\
& \text{DerSolGral} := \frac{d}{dx} y(x) = - \frac{-x + 2 _CI}{_CI} \quad (3) \\
& \text{Comprobar} := \text{simplify}(\text{eval}(\text{subs}(y(x) = \text{rhs}(\text{SolGral}[3]), \text{Ecuacion}))) \\
& \text{Comprobar} := 0 = 0 \quad (4) \\
& \text{SolSing} := \text{SolGral}[1] \\
& \text{SolSing} := y(x) = -4 x \quad (5) \\
& \text{SolSingDos} := \text{SolGral}[2] \\
& \text{SolSingDos} := y(x) = 0 \quad (6) \\
& \text{ComprobarDos} := \text{simplify}(\text{eval}(\text{subs}(y(x) = \text{rhs}(\text{SolSingDos}), \text{Ecuacion}))) \\
& \text{ComprobarDos} := 0 = 0 \quad (7) \\
& \text{ComprobarUno} := \text{simplify}(\text{eval}(\text{subs}(y(x) = \text{rhs}(\text{SolSing}), \text{Ecuacion}))) \\
& \text{ComprobarUno} := 0 = 0 \quad (8) \\
& \text{restart} \\
& \text{Ecua} := x^2 - y(x) \cdot x^2 + (y(x)^2 + x \cdot y(x)^2) \cdot \text{diff}(y(x), x) = 0 \\
& \text{Ecua} := x^2 - y(x) x^2 + (y(x)^2 + x y(x)^2) \left(\frac{d}{dx} y(x) \right) = 0 \quad (9) \\
& M := \text{factor}(x^2 - y \cdot x^2) \\
& M := -x^2 (y - 1) \quad (10) \\
& N := \text{factor}(y^2 + x \cdot y^2) \\
& N := y^2 (x + 1) \quad (11) \\
& P := -x^2 \\
& P := -x^2 \quad (12) \\
& Q := y - 1 \\
& Q := y - 1 \quad (13) \\
& R := x + 1 \\
& R := x + 1 \quad (14) \\
& S := y^2 \\
& S := y^2 \quad (15) \\
& \text{SolGralCero} := \text{Int}\left(\frac{P}{R}, x\right) + \text{Int}\left(\frac{S}{Q}, y\right) = _CI \\
& \text{SolGralCero} := \int \left(-\frac{x^2}{x + 1} \right) dx + \int \frac{y^2}{y - 1} dy = _CI \quad (16)
\end{aligned}$$

$$\begin{aligned} &> \text{SolGral} := \text{int}\left(\frac{P}{R}, x\right) + \text{int}\left(\frac{S}{Q}, y\right) = _CI \\ &\text{SolGral} := -\frac{1}{2} x^2 + x - \ln(x+1) + \frac{1}{2} y^2 + y + \ln(y-1) = _CI \end{aligned} \quad (17)$$

$$\begin{aligned} &> \text{SolGralDos} := -\frac{1}{2} x^2 + x - \ln(x + 1) + \frac{1}{2} y(x)^2 + y(x) + \ln(y(x) - 1) =_CI \\ &\text{SolGralDos} := -\frac{1}{2} x^2 + x - \ln(x + 1) + \frac{1}{2} y(x)^2 + y(x) + \ln(y(x) - 1) =_CI \end{aligned} \quad (18)$$

$$\begin{aligned} & \text{DerSolGral} := \text{simplify}(\text{isolate}(\text{diff}(\text{SolGralDos}, x), \text{diff}(y(x), x))) \\ & \text{DerSolGral} := \frac{d}{dx} y(x) = \frac{x^2 (y(x) - 1)}{(x + 1) y(x)^2} \end{aligned} \quad (19)$$

$$\begin{aligned} & \triangleright \text{DerEcua} := \text{isolate}(\text{Ecua}, \text{diff}(y(x), x)) \\ & \text{DerEcua} := \frac{d}{dx} y(x) = \frac{-x^2 + y(x) x^2}{y(x)^2 + x y(x)^2} \end{aligned} \quad (20)$$

$$\begin{aligned} & \textcolor{red}{> } \textit{Comprobacion} := \textit{simplify}(\textit{rhs}(\textit{DerSolGral}) - \textit{rhs}(\textit{DerEcua})) = 0 \\ & \textcolor{blue}{Comprobacion} := 0 = 0 \end{aligned} \tag{21}$$

$$\begin{aligned} &\Rightarrow \text{with}(DEtools) : \\ &\Rightarrow odeadvisor(Ecua) \end{aligned} \quad [\textit{separable}] \quad (22)$$

$$x^2 - y(x) x^2 + (y(x)^2 + x y(x)^2) \left(\frac{d}{dx} y(x) \right) = 0 \quad (23)$$

$$\begin{aligned} & \text{restart} \\ & Ecua := y \cdot \log(y) + x \cdot y' = 0 \\ & Ecua := y(x) \ln(y(x)) + x \left(\frac{d}{dx} y(x) \right) = 0 \end{aligned} \quad (24)$$

$$\begin{aligned} &\Rightarrow \text{with}(DEtools) : \\ &\Rightarrow odeadvisor(Ecua) \end{aligned} \quad [\textit{separable}] \quad (25)$$

$$\begin{aligned} & \triangleright P := 1; Q := y \cdot \log(y); R := x; S := 1 \\ & \quad P := 1 \\ & \quad Q := y \ln(y) \\ & \quad R := x \\ & \quad S := 1 \end{aligned} \tag{26}$$

$$\begin{aligned} &> \text{SolGral} := \text{isolate}\left(\text{int}\left(\frac{P}{R}, x\right) + \text{int}\left(\frac{S}{Q}, y\right) = \log(_CI), y\right) \\ &\text{SolGral} := y = e^{\frac{CI}{x}} \end{aligned} \quad (27)$$

