

>	<i>restart</i>		
>	<i>Ecuacion</i> := (1 + exp(x)) · y · y' = exp(x)		
		$Ecuacion := (1 + e^x) y(x) \left( \frac{d}{dx} y(x) \right) = e^x$	(1)
>	<i>EcuaDos</i> := -rhs( <i>Ecuacion</i> ) + lhs( <i>Ecuacion</i> ) = 0		
		$EcuaDos := -e^x + (1 + e^x) y(x) \left( \frac{d}{dx} y(x) \right) = 0$	(2)
>	with(DEtools) :		
>	odeadvisor( <i>Ecuacion</i> )		
		$[_{separable}]$	(3)
>	<i>M</i> := -exp(x)		
		$M := -e^x$	(4)
>	<i>N</i> := (1 + e <sup>x</sup> ) y		
		$N := (1 + e^x) y$	(5)
>	<i>P</i> := exp(x)		
		$P := e^x$	(6)
>	<i>Q</i> := -1		
		$Q := -1$	(7)
>	<i>R</i> := (1 + exp(x))		
		$R := 1 + e^x$	(8)
>	<i>S</i> := y		
		$S := y$	(9)
>	<i>SolGral</i> := int( $\frac{P}{R}, x$ ) + int( $\frac{S}{Q}, y$ ) = _C1		
		$SolGral := \ln(1 + e^x) - \frac{y^2}{2} = _C1$	(10)
>	<i>SolGralDos</i> := ln(1 + e <sup>x</sup> ) - $\frac{y(x)^2}{2}$ = _C1		
		$SolGralDos := \ln(1 + e^x) - \frac{y(x)^2}{2} = _C1$	(11)
>	<i>DerSolGral</i> := diff( <i>SolGralDos</i> , x)		
		$DerSolGral := \frac{e^x}{1 + e^x} - y(x) \left( \frac{d}{dx} y(x) \right) = 0$	(12)
>	<i>DerDerSolGral</i> := isolate( <i>DerSolGral</i> , diff(y(x), x))		
		$DerDerSolGral := \frac{d}{dx} y(x) = \frac{e^x}{(1 + e^x) y(x)}$	(13)
>	<i>Ecuacion</i>		
		$(1 + e^x) y(x) \left( \frac{d}{dx} y(x) \right) = e^x$	(14)

$$\begin{aligned} &> \text{DerEcuacion} := \text{isolate}(\text{Ecuacion}, \text{diff}(y(x), x)) \\ &\quad \text{DerEcuacion} := \frac{d}{dx} y(x) = \frac{e^x}{(1 + e^x) y(x)} \end{aligned} \quad (15)$$

$$\begin{aligned} &> \text{Comprobar} := \text{rhs}(\text{DerDerSolGral}) - \text{rhs}(\text{DerEcuacion}) = 0 \\ &\quad \text{Comprobar} := 0 = 0 \end{aligned} \quad (16)$$

$> \text{restart}$

$$\begin{aligned} &> \text{Ecua} := y' \cdot \sin(x) = y \cdot \log(y) \\ &\quad \text{Ecua} := \left( \frac{d}{dx} y(x) \right) \sin(x) = y(x) \ln(y(x)) \end{aligned} \quad (17)$$

$> \text{with}(\text{DEtools}) :$

$$\begin{aligned} &> \text{odeadvisor}(\text{Ecua}) \\ &\quad \text{[_separable]} \end{aligned} \quad (18)$$

$$\begin{aligned} &> \text{EcuaDos} := -\text{rhs}(\text{Ecua}) + \text{lhs}(\text{Ecua}) = 0 \\ &\quad \text{EcuaDos} := -y(x) \ln(y(x)) + \left( \frac{d}{dx} y(x) \right) \sin(x) = 0 \end{aligned} \quad (19)$$

$$\begin{aligned} &> M := -y \ln(y) \\ &\quad M := -y \ln(y) \end{aligned} \quad (20)$$

$$\begin{aligned} &> N := \sin(x) \\ &\quad N := \sin(x) \end{aligned} \quad (21)$$

$$\begin{aligned} &> P := 1 \\ &\quad P := 1 \end{aligned} \quad (22)$$

$$\begin{aligned} &> Q := M \\ &\quad Q := -y \ln(y) \end{aligned} \quad (23)$$

$$\begin{aligned} &> R := N \\ &\quad R := \sin(x) \end{aligned} \quad (24)$$

$$\begin{aligned} &> S := 1 \\ &\quad S := 1 \end{aligned} \quad (25)$$

$$\begin{aligned} &> \text{SolGral} := \text{int}\left(\frac{P}{R}, x\right) + \text{int}\left(\frac{S}{Q}, y\right) = \_C1 \\ &\quad \text{SolGral} := \ln(\csc(x) - \cot(x)) - \ln(\ln(y)) = \_C1 \end{aligned} \quad (26)$$

$$\begin{aligned} &> \text{SolGralDos} := \text{expand}(\exp(\text{lhs}(\text{SolGral}))) = \_C1 \\ &\quad \text{SolGralDos} := \frac{\csc(x)}{\ln(y)} - \frac{\cot(x)}{\ln(y)} = \_C1 \end{aligned} \quad (27)$$

$$\begin{aligned} &> \text{SolGralTres} := \frac{\csc(x)}{\ln(y(x))} - \frac{\cot(x)}{\ln(y(x))} = \_C1 \\ &\quad \text{SolGralTres} := \frac{\csc(x)}{\ln(y(x))} - \frac{\cot(x)}{\ln(y(x))} = \_C1 \end{aligned} \quad (28)$$

$$\begin{aligned} &> \text{DerSolGral} := \text{simplify}(\text{isolate}(\text{diff}(\text{SolGralTres}, x), \text{diff}(y(x), x))) \\ &\quad \text{DerSolGral} := \frac{d}{dx} y(x) = y(x) \ln(y(x)) \csc(x) \end{aligned} \quad (29)$$

$$\begin{aligned} &> \text{DerEcua} := \text{isolate}(\text{Ecua}, \text{diff}(y(x), x)) \\ &\text{DerEcua} := \frac{d}{dx} y(x) = \frac{\ln(y(x)) y(x)}{\sin(x)} \end{aligned} \quad (30)$$

$$\begin{aligned} &> \text{Comprobar} := \text{simplify}(\text{rhs}(\text{DerSolGral}) - \text{rhs}(\text{DerEcua})) = 0 \\ &\text{Comprobar} := 0 = 0 \end{aligned} \quad (31)$$

$\text{restart}$

$$\begin{aligned} &> \text{Ecua} := x \cdot y' = \sqrt{x^2 - y^2} + y \\ &\text{Ecua} := x \left( \frac{d}{dx} y(x) \right) = \sqrt{x^2 - y(x)^2} + y(x) \end{aligned} \quad (32)$$

$\text{with}(\text{DEtools}) :$

$$\begin{aligned} &> \text{odeadvisor}(\text{Ecua}) \\ &[[_{\text{homogeneous}}, \text{class } A], _{\text{rational}}, _{\text{dAlembert}}] \end{aligned} \quad (33)$$

$$\begin{aligned} &> \text{EcuaDos} := \text{simplify}(\text{isolate}(\text{eval}(\text{subs}(y(x) = x \cdot u(x), \text{Ecua})), \text{diff}(u(x), x))) \\ &\text{EcuaDos} := \frac{d}{dx} u(x) = \frac{\sqrt{x^2 (1 - u(x)^2)}}{x^2} \end{aligned} \quad (34)$$

$$\begin{aligned} &> M := -x \cdot \sqrt{1 - u^2} \\ &M := -x \sqrt{-u^2 + 1} \end{aligned} \quad (35)$$

$$\begin{aligned} &> N := x^2 \\ &N := x^2 \end{aligned} \quad (36)$$

$$\begin{aligned} &> P := -x \\ &P := -x \end{aligned} \quad (37)$$

$$\begin{aligned} &> Q := \sqrt{-u^2 + 1} \\ &Q := \sqrt{-u^2 + 1} \end{aligned} \quad (38)$$

$$\begin{aligned} &> R := x^2 \\ &R := x^2 \end{aligned} \quad (39)$$

$$\begin{aligned} &> S := 1 \\ &S := 1 \end{aligned} \quad (40)$$

$$\begin{aligned} &> \text{SolGral} := \text{int}\left(\frac{P}{R}, x\right) + \text{int}\left(\frac{S}{Q}, u\right) = \_CI \\ &\text{SolGral} := -\ln(x) + \arcsin(u) = \_CI \end{aligned} \quad (41)$$

$$\begin{aligned} &> \text{SolGralDos} := \text{subs}\left(u = \frac{y(x)}{x}, \text{SolGral}\right) \\ &\text{SolGralDos} := -\ln(x) + \arcsin\left(\frac{y(x)}{x}\right) = \_CI \end{aligned} \quad (42)$$

$$\begin{aligned} &> \text{DerSolGral} := \text{simplify}(\text{isolate}(\text{diff}(\text{SolGralDos}, x), \text{diff}(y(x), x))) \\ &\text{DerSolGral} := \frac{d}{dx} y(x) = \frac{\sqrt{\frac{x^2 - y(x)^2}{x^2}} x + y(x)}{x} \end{aligned} \quad (43)$$

$$\begin{aligned}
 & \text{DerSolGralDos} := \text{diff}(y(x), x) = \frac{(\sqrt{x^2 - y(x)^2} + y(x))}{x} \\
 & \text{DerSolGralDos} := \frac{d}{dx} y(x) = \frac{\sqrt{x^2 - y(x)^2} + y(x)}{x} \tag{44}
 \end{aligned}$$

$$\begin{aligned}
 & \text{DerEcua} := \text{isolate}(\text{Ecua}, \text{diff}(y(x), x)) \\
 & \text{DerEcua} := \frac{d}{dx} y(x) = \frac{\sqrt{x^2 - y(x)^2} + y(x)}{x} \tag{45}
 \end{aligned}$$