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> restart
> Ecuacion := 3·exp(x)·tan(y(x)) + (2 - exp(x))·(sec(y(x)))·2·diff(y(x), x) = 0
      Ecuacion := 3 ex tan(y(x)) + (2 - ex) sec(y(x))2 (  $\frac{d}{dx}$  y(x) ) = 0 (1)
> SolucionGeneral := simplify(dsolve(Ecuacion))
SolucionGeneral := y(x) =  $\frac{1}{2} \arctan\left( (2\_CI (e^{3x} - 6 e^{2x} + 12 e^x - 8)) / (_CI^2 e^{6x} - 12\_CI^2 e^{5x} + 60\_CI^2 e^{4x} - 160\_CI^2 e^{3x} + 240\_CI^2 e^{2x} - 192\_CI^2 e^x + 64\_CI^2 + 1), -(_CI^2 e^{6x} - 12\_CI^2 e^{5x} + 60\_CI^2 e^{4x} - 160\_CI^2 e^{3x} + 240\_CI^2 e^{2x} - 192\_CI^2 e^x + 64\_CI^2 - 1) / (_CI^2 e^{6x} - 12\_CI^2 e^{5x} + 60\_CI^2 e^{4x} - 160\_CI^2 e^{3x} + 240\_CI^2 e^{2x} - 192\_CI^2 e^x + 64\_CI^2 + 1) \right)$  (2)
> restart
> Funcion1 := P(x) = 3·exp(x)
      Funcion1 := P(x) = 3 ex (3)
> Funcion2 := Q(y) = tan(y)
      Funcion2 := Q(y) = tan(y) (4)
> Funcion3 := R(x) = (2 - exp(x))
      Funcion3 := R(x) = 2 - ex (5)
> Funcion4 := S(y) = sec(y)·2
      Funcion4 := S(y) = sec(y)2 (6)
> Ecuacion := rhs(Funcion1)·rhs(Funcion2) + (rhs(Funcion3)·rhs(Funcion4))·diff(y(x), x) = 0
      Ecuacion := 3 ex tan(y) + (2 - ex) sec(y)2 (  $\frac{d}{dx}$  y(x) ) = 0 (7)
> Solucion1 := int(  $\frac{rhs(Funcion4)}{rhs(Funcion2)}$ , y ) = -int(  $\frac{rhs(Funcion1)}{rhs(Funcion3)}$ , x ) + log(C)
      Solucion1 := ln(tan(y)) = 3 ln(2 - ex) + ln(C) (8)
> Solucion2 := isolate(Solucion1, y)
      Solucion2 := y = -arctan( C (ex)3 - 6 C (ex)2 + 12 C ex - 8 C ) (9)
> restart
> Ecuacion := (y(x)·2 + x·y(x)·2)·diff(y(x), x) + (x·2 - y(x)·x·2) = 0
      Ecuacion := (y(x)2 + x y(x)2) (  $\frac{d}{dx}$  y(x) ) + x2 - y(x) x2 = 0 (10)
> FactorM := M(x, y) = x·2 - y·x·2;
      FactorM := M(x, y) = -x2 y + x2 (11)
> FactorN := N(x, y) = y2 + x y2
      FactorN := N(x, y) = x y2 + y2 (12)
> SepararM := M(x, y) = factor(rhs(FactorM))

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$$\text{SepararM} := M(x, y) = -x^2 (y - 1) \quad (13)$$

$$> \text{SepararN} := N(x, y) = \text{factor}(\text{rhs}(\text{FactorN}))$$

$$\text{SepararN} := N(x, y) = y^2 (x + 1) \quad (14)$$

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$$> \text{FactorP} := P(x) = -x \cdot 2$$

$$\text{FactorP} := P(x) = -x^2 \quad (15)$$

$$> \text{FactorQ} := Q(y) = y - 1$$

$$\text{FactorQ} := Q(y) = y - 1 \quad (16)$$

$$> \text{FactorR} := R(x) = x + 1$$

$$\text{FactorR} := R(x) = x + 1 \quad (17)$$

$$> \text{FactorS} := S(y) = y \cdot 2$$

$$\text{FactorS} := S(y) = y^2 \quad (18)$$

$$> \text{SolucionGral} := \text{int}\left(\frac{\text{rhs}(\text{FactorS})}{\text{rhs}(\text{FactorQ})}, y\right) = -\text{int}\left(\frac{\text{rhs}(\text{FactorP})}{\text{rhs}(\text{FactorR})}, x\right) + C$$

$$\text{SolucionGral} := \frac{1}{2} y^2 + y + \ln(y - 1) = \frac{1}{2} x^2 - x + \ln(x + 1) + C \quad (19)$$

$$> \text{SolucionGeneral} := \frac{1}{2} y(x)^2 + y(x) + \ln(y(x) - 1) = \frac{1}{2} x^2 - x + \ln(x + 1) + C$$

$$\text{SolucionGeneral} := \frac{1}{2} y(x)^2 + y(x) + \ln(y(x) - 1) = \frac{1}{2} x^2 - x + \ln(x + 1) + C \quad (20)$$

$$> \text{EcuaUno} := \text{simplify}(\text{isolate}(\text{diff}(\text{SolucionGeneral}, x), \text{diff}(y(x), x)))$$

$$\text{EcuaUno} := \frac{d}{dx} y(x) = \frac{x^2 (y(x) - 1)}{(x + 1) y(x)^2} \quad (21)$$

$$> \text{EcuaDos} := \text{isolate}(\text{EcuaUno}, \text{diff}(y(x), x))$$

$$\text{EcuaDos} := \frac{d}{dx} y(x) = \frac{-x^2 + y(x) x^2}{y(x)^2 + x y(x)^2} \quad (22)$$

$$> \text{Comprobacion} := \text{simplify}(\text{rhs}(\text{EcuaUno}) - \text{rhs}(\text{EcuaDos})) = 0$$

$$\text{Comprobacion} := 0 = 0 \quad (23)$$

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