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> restart
> EcuaDif := y'' + y' + y = 2*cos(2 x)

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$$EcuaDif := \frac{d^2}{dx^2} y(x) + \frac{d}{dx} y(x) + y(x) = 2 \cos(2 x) \quad (1)$$

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> SolGral := dsolve(EcuaDif)

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$$SolGral := y(x) = e^{-\frac{x}{2}} \sin\left(\frac{\sqrt{3} x}{2}\right) c_2 + e^{-\frac{x}{2}} \cos\left(\frac{\sqrt{3} x}{2}\right) c_1 + \frac{4 \sin(2 x)}{13} - \frac{6 \cos(2 x)}{13} \quad (2)$$

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> EcuaDifDos := d/dx y(x) + y(x) = 2*cos(2 x)

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$$EcuaDifDos := \frac{d}{dx} y(x) + y(x) = 2 \cos(2 x) \quad (3)$$

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> SolGralDos := dsolve(EcuaDifDos)

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$$SolGralDos := y(x) = \frac{2 \cos(2 x)}{5} + \frac{4 \sin(2 x)}{5} + e^{-x} c_1 \quad (4)$$

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> EcuaDifTres := diff(y(x), x$3) = 2*cos(2 x)

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$$EcuaDifTres := \frac{d^3}{dx^3} y(x) = 2 \cos(2 x) \quad (5)$$

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> SolGralTres := dsolve(EcuaDifTres)

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$$SolGralTres := y(x) = \frac{c_1 x^2}{2} - \frac{\sin(2 x)}{4} + c_2 x + c_3 \quad (6)$$

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> Parametro := isolate(simplify(subs(x=0, y(0)=5, dsolve(EcuaDifDos))), c1)

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$$Parametro := c_1 = \frac{23}{5} \quad (7)$$

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> SolPart := subs(c1=rhs(Parametro), SolGralDos)

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$$SolPart := y(x) = \frac{2 \cos(2 x)}{5} + \frac{4 \sin(2 x)}{5} + \frac{23 e^{-x}}{5} \quad (8)$$

```

> restart
> Ecua := 2*y(x)*(diff(y(x), x) + 2) - x*(diff(y(x), x))^2 = 0

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$$Ecua := 2 y(x) \left( \frac{d}{dx} y(x) + 2 \right) - x \left( \frac{d}{dx} y(x) \right)^2 = 0 \quad (9)$$

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> SolGral := y(x) = (_C1 - x)^2 / _C1

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$$SolGral := y(x) = \frac{(_C1 - x)^2}{_C1} \quad (10)$$

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> ComprobarUno := simplify(eval(subs(y(x)=rhs(SolGral), Ecua)))

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$$ComprobarUno := 0 = 0 \quad (11)$$

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> SolPart := y(x) = (-Pi - x)^2 / -Pi

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$$SolPart := y(x) = -\frac{(-\pi - x)^2}{\pi} \quad (12)$$

$$\begin{aligned} &> ComprobarDos := simplify(eval(subs(y(x) = rhs(SolPart), Ecua))) \\ &ComprobarDos := 0 = 0 \end{aligned} \quad (13)$$

$$\begin{aligned} &> SolSing := y(x) = -4 \cdot x \\ &SolSing := y(x) = -4 x \end{aligned} \quad (14)$$

$$\begin{aligned} &> ComprobarTres := simplify(eval(subs(y(x) = rhs(SolSing), Ecua))) \\ &ComprobarTres := 0 = 0 \end{aligned} \quad (15)$$

$\begin{aligned} &> \end{aligned}$