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> restart
> Ecua := y'' - 4 y' + 4 y = 2 · exp(2 x)
      Ecua :=  $\frac{d^2}{dx^2} y(x) - 4 \left( \frac{d}{dx} y(x) \right) + 4 y(x) = 2 e^{2x}$  (1)
> SolGral := dsolve(Ecua)
      SolGral :=  $y(x) = e^{2x} \_C2 + e^{2x} x \_C1 + x^2 e^{2x}$  (2)
> restart
> SolGral := y(x) = \_C1 · exp(4 x) + \_C2 · cos(2 x) + \_C3 · sin(2 x) + 5 · exp(3 x) + 4 · x^2 + 2
      · cos(5 x)
      SolGral :=  $y(x) = \_C1 e^{4x} + \_C2 \cos(2 x) + \_C3 \sin(2 x) + 5 e^{3x} + 4 x^2 + 2 \cos(5 x)$  (3)
> SolHom := y(x) = \_C1 e^{4x} + \_C2 cos(2 x) + \_C3 sin(2 x)
      SolHom :=  $y(x) = \_C1 e^{4x} + \_C2 \cos(2 x) + \_C3 \sin(2 x)$  (4)
> SolPartQ := y(x) = 5 e^{3x} + 4 x^2 + 2 cos(5 x)
      SolPartQ :=  $y(x) = 5 e^{3x} + 4 x^2 + 2 \cos(5 x)$  (5)
> EcuaHom := y''' - 4 y'' + 4 y' - 16 y = 0
      EcuaHom :=  $\frac{d^3}{dx^3} y(x) - 4 \left( \frac{d^2}{dx^2} y(x) \right) + 4 \left( \frac{d}{dx} y(x) \right) - 16 y(x) = 0$  (6)
> Q := eval(subs(y(x) = rhs(SolPartQ), lhs(EcuaHom)))
      Q :=  $-65 e^{3x} + 210 \sin(5 x) - 32 + 168 \cos(5 x) + 32 x - 64 x^2$  (7)
> Ecuacion := lhs(EcuaHom) = Q
      Ecuacion :=  $\frac{d^3}{dx^3} y(x) - 4 \left( \frac{d^2}{dx^2} y(x) \right) + 4 \left( \frac{d}{dx} y(x) \right) - 16 y(x) = -65 e^{3x} + 210 \sin(5 x)$  (8)
       $- 32 + 168 \cos(5 x) + 32 x - 64 x^2$ 
> restart
> Ecua := y'' - 6 y' + 9 y = 2 exp(4 x) + 3 x^2
      Ecua :=  $\frac{d^2}{dx^2} y(x) - 6 \left( \frac{d}{dx} y(x) \right) + 9 y(x) = 2 e^{4x} + 3 x^2$  (9)
> SolGral := dsolve(Ecua)
      SolGral :=  $y(x) = e^{3x} \_C2 + e^{3x} x \_C1 + 2 e^{4x} + \frac{1}{3} x^2 + \frac{4}{9} x + \frac{2}{9}$  (10)
> restart
>

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