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> restart
> SolGral := y(x) = C1·exp(2 x) + C2·exp(3 x) + exp(4 x) + exp(5 x)
      SolGral := y(x) = C1 e2x + C2 e3x + e4x + e5x (1)
> SolHom := y(x) = C1·exp(2 x) + C2·exp(3 x)
      SolHom := y(x) = C1 e2x + C2 e3x (2)
> SolPart := y(x) = exp(4 x) + exp(5 x)
      SolPart := y(x) = e4x + e5x (3)
> EcuaCarac := expand((m - 2)·(m - 3)) = 0
      EcuaCarac := m2 - 5 m + 6 = 0 (4)
> EcuaHom := diff(y(x), x$2) - 5·diff(y(x), x) + 6·y(x) = 0
      EcuaHom :=  $\frac{d^2}{dx^2} y(x) - 5 \left( \frac{d}{dx} y(x) \right) + 6 y(x) = 0$  (5)
> Q := simplify(eval(subs(y(x) = rhs(SolPart), lhs(EcuaHom))))
      Q := 2 e4x + 6 e5x (6)
> EcuacionFinal := lhs(EcuaHom) = Q
      EcuacionFinal :=  $\frac{d^2}{dx^2} y(x) - 5 \left( \frac{d}{dx} y(x) \right) + 6 y(x) = 2 e^{4x} + 6 e^{5x}$  (7)
> SolGral
      y(x) = C1 e2x + C2 e3x + e4x + e5x (8)
> restart
> SolGral := y(x) = exp(-x)·(C1 + C2·x + C3·x·2) + 8·exp(-x)·x·3
      SolGral := y(x) = e-x (C1 + C2 x + C3 x2) + 8 e-x x3 (9)
> EcuaCarac := expand((m + 1)·3) = 0
      EcuaCarac := m3 + 3 m2 + 3 m + 1 = 0 (10)
> EcuaHom := y''' + 3 y'' + 3 y' + y = 0
      EcuaHom :=  $\frac{d^3}{dx^3} y(x) + 3 \left( \frac{d^2}{dx^2} y(x) \right) + 3 \left( \frac{d}{dx} y(x) \right) + y(x) = 0$  (11)
> SolPart := y(x) = 8·x·3·exp(-x)
      SolPart := y(x) = 8 e-x x3 (12)
> Q := eval(subs(y(x) = rhs(SolPart), lhs(EcuaHom)))
      Q := 48 e-x (13)
> EcuacionNoHomogena := lhs(EcuaHom) = Q
      EcuacionNoHomogena :=  $\frac{d^3}{dx^3} y(x) + 3 \left( \frac{d^2}{dx^2} y(x) \right) + 3 \left( \frac{d}{dx} y(x) \right) + y(x) = 48 e^{-x}$  (14)
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