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[> restart
[> Equation := diff(y(t), t$2) - 7*diff(y(t), t) + 12*y(t) = 4*exp(2 t)
      Equation :=  $\frac{d^2}{dt^2} y(t) - 7 \left( \frac{d}{dt} y(t) \right) + 12 y(t) = 4 e^{2t}$  (1)
[> InitialCondition := y(0) = 2, D(y)(0) = -3
      InitialCondition :=  $y(0) = 2, D(y)(0) = -3$  (2)
[> with(inttrans)
[addtable, fourier, fouriercos, fouriersin, hankel, hilbert, invfourier, invhilbert, invlaplace,
  invmellin, laplace, mellin, savetable] (3)
[> LapTransEqua := subs(InitialCondition, laplace(Equation, t, s))
LapTransEqua :=  $s^2 \text{laplace}(y(t), t, s) + 17 - 2s - 7s \text{laplace}(y(t), t, s) + 12 \text{laplace}(y(t), t,$  (4)
       $s) = \frac{4}{s-2}$ 
[> LapTransSol := simplify(isolate(LapTransEqua, laplace(y(t), t, s)))
      LapTransSol :=  $\text{laplace}(y(t), t, s) = \frac{38 - 21s + 2s^2}{(s-2)(s^2 - 7s + 12)}$  (5)
[> ParticularSolution := invlaplace(LapTransSol, s, t)
      ParticularSolution :=  $y(t) = -7e^{4t} + 7e^{3t} + 2e^{2t}$  (6)
[> PartSol := dsolve({Equation, InitialCondition})
      PartSol :=  $y(t) = -7e^{4t} + 7e^{3t} + 2e^{2t}$  (7)
[>
[>

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