```
> restart
> f := t··2 + exp(3·t)
```
$$f := t^2 + \mathrm{e}^{3\,t} \tag{1}$$

```
> with(inttrans);
```
$[$ *addtable, fourier, fouriercos, fouriersin, hankel, hilbert, invfourier, invhilbert, invlaplace,* $\qquad$ **(2)**
$\quad$ *invmellin, laplace, mellin, savetable* $]$

```
> LapTrans := laplace(f, t, s)
```
$$LapTrans := \frac{2}{s^3} + \frac{1}{s-3} \tag{3}$$

```
> F := \frac{2}{(s-2)··2}
```
$$F := \frac{2}{(s-2)^2} \tag{4}$$

```
> InvLapTran := invlaplace(F, s, t)
```
$$InvLapTran := 2\,t\,\mathrm{e}^{2\,t} \tag{5}$$

```
> restart
> Equa := diff(y(t), t$2) − 5·diff(y(t), t) + 6·y(t) = 4·exp(t)
```
$$Equa := \frac{\mathrm{d}^2}{\mathrm{d}t^2}\,y(t) - 5\left(\frac{\mathrm{d}}{\mathrm{d}t}\,y(t)\right) + 6\,y(t) = 4\,\mathrm{e}^t \tag{6}$$

```
> InitCond := y(0) = 4, D(y)(0) = -3;
```
$$InitCond := y(0) = 4, \mathrm{D}(y)(0) = -3 \tag{7}$$

```
> with(inttrans) :
> LapTransEqua := subs(InitCond, laplace(Equa, t, s))
```
$LapTransEqua := s^2\,laplace(y(t), t, s) + 23 - 4\,s - 5\,s\,laplace(y(t), t, s) + 6\,laplace(y(t), t,$ $\qquad$ **(8)**
$\quad s) = \dfrac{4}{s-1}$

```
> LapTransSol := simplify(isolate(LapTransEqua, laplace(y(t), t, s)))
```
$$LapTransSol := laplace(y(t), t, s) = \frac{27 - 27\,s + 4\,s^2}{(s-1)\,(s^2 - 5\,s + 6)} \tag{9}$$

```
> PartSolution := invlaplace(LapTransSol, s, t)
```
$$PartSolution := y(t) = 11\,\mathrm{e}^{2\,t} - 9\,\mathrm{e}^{3\,t} + 2\,\mathrm{e}^t \tag{10}$$

```
> 
> 
```