```
> restart
> with(inttrans) :
> F := 1/(s-2)^^2
```

$$F := \frac{1}{(s-2)^2} \tag{1}$$

```
> f := invlaplace(F, s, t)
```

$$f := t\,e^{2t} \tag{2}$$

```
> Equa := diff(y(t), t$2) - 7*diff(y(t), t) + 12*y(t) = 4*exp(2*t)
```

$$Equa := \frac{d^2}{dt^2} y(t) - 7\left(\frac{d}{dt} y(t)\right) + 12\,y(t) = 4\,e^{2t} \tag{3}$$

```
> InitCond := y(0) = 4, D(y)(0) = -3
```

$$InitCond := y(0) = 4,\ D(y)(0) = -3 \tag{4}$$

```
> LapTransEqua := subs(InitCond, laplace(Equa, t, s))
```

$$LapTransEqua := s^2\,laplace(y(t), t, s) + 31 - 4\,s - 7\,s\,laplace(y(t), t, s) + 12\,laplace(y(t), t, s) = \frac{4}{s-2} \tag{5}$$

```
> LapTransPartSol := simplify(isolate(LapTransEqua, laplace(y(t), t, s)))
```

$$LapTransPartSol := laplace(y(t), t, s) = \frac{66 - 39\,s + 4\,s^2}{(s-2)\,(s^2 - 7\,s + 12)} \tag{6}$$

```
> PartSolution := invlaplace(LapTransPartSol, s, t)
```

$$PartSolution := y(t) = 15\,e^{3t} - 13\,e^{4t} + 2\,e^{2t} \tag{7}$$

```
>
```