```
> restart
```
```
> with(inttrans)
```
$[addtable, fourier, fouriercos, fouriersin, hankel, hilbert, invfourier, invhilbert, invlaplace,$ **(1)**
  $invmellin, laplace, mellin, savetable]$

```
> f := 1
```
$$f := 1$$ **(2)**

```
> F := laplace(f, t, s)
```
$$F := \frac{1}{s}$$ **(3)**

```
> g := t
```
$$g := t$$ **(4)**

```
> G := laplace(g, t, s)
```
$$G := \frac{1}{s^2}$$ **(5)**

```
> h := exp(a·t)
```
$$h := e^{a\,t}$$ **(6)**

```
> H := laplace(h, t, s)
```
$$H := \frac{1}{s - a}$$ **(7)**

```
> j := cos(b·t)
```
$$j := \cos(b\,t)$$ **(8)**

```
> J := laplace(j, t, s)
```
$$J := \frac{s}{b^2 + s^2}$$ **(9)**

```
> k := sin(b·t)
```
$$k := \sin(b\,t)$$ **(10)**

```
> K := laplace(k, t, s)
```
$$K := \frac{b}{b^2 + s^2}$$ **(11)**

```
> l := exp(a·t)·cos(b·t)
```
$$l := e^{a\,t} \cos(b\,t)$$ **(12)**

```
> L := laplace(l, t, s)
```
$$L := \frac{s - a}{(s - a)^2 + b^2}$$ **(13)**

```
> m := exp(a·t)·sin(b·t)
```
$$m := e^{a\,t} \sin(b\,t)$$ **(14)**

```
> M := laplace(m, t, s)
```
$$M := \frac{b}{(s - a)^2 + b^2}$$ **(15)**

```
> mm := invlaplace(M, s, t)
```
$$mm := e^{a\,t} \sin(b\,t)$$ **(16)**

> $N := \dfrac{s}{s\cdot\cdot 2 + 2\cdot s + 2}$

$$N := \frac{s}{s^2 + 2\,s + 2} \tag{17}$$
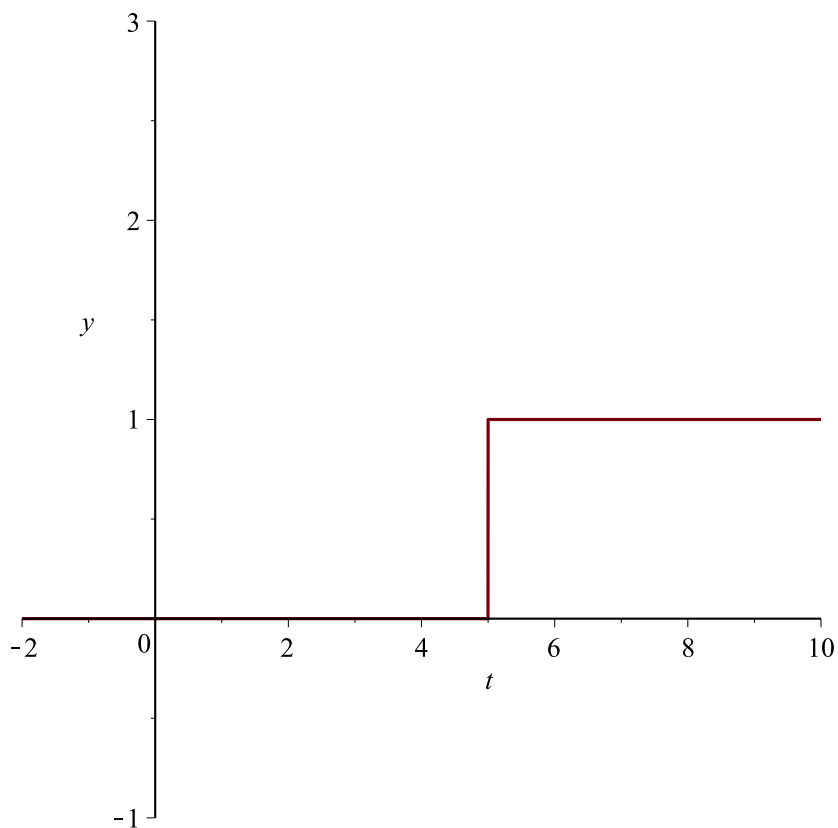
> $n := invlaplace(N, s, t)$

$$n := e^{-t}\,(\cos(t) - \sin(t)) \tag{18}$$

> $func := \mathrm{Heaviside}(t - 5)$

$$func := \mathrm{Heaviside}(t - 5) \tag{19}$$

> $plot(\,func,\, t = {-2}\,..10,\, y = {-1}\,..3\,)$

> $Ecua := diff(y(t), t\$2) - 5\cdot diff(y(t), t) + 6\cdot y(t) = 2\cdot \exp(4\cdot t)$

$$Ecua := \frac{d^2}{dt^2}\,y(t) - 5\left(\frac{d}{dt}\,y(t)\right) + 6\,y(t) = 2\,e^{4t} \tag{20}$$

> $Cond := y(0) = 6,\, \mathrm{D}(y)(0) = {-8}$

$$Cond := y(0) = 6,\, \mathrm{D}(y)(0) = -8 \tag{21}$$

> $EcuaLap := subs(Cond, laplace(Ecua, t, s))$

$$EcuaLap := s^2\,laplace(y(t), t, s) + 38 - 6\,s - 5\,s\,laplace(y(t), t, s) + 6\,laplace(y(t), t, s) \tag{22}$$

$$= \frac{2}{s - 4}$$

> $SolLap := isolate(EcuaLap, laplace(y(t), t, s))$

$$SolLap := laplace(y(t), t, s) = \frac{\dfrac{2}{s - 4} + 6\,s - 38}{s^2 - 5\,s + 6} \tag{23}$$

> $SolPart := invlaplace(SolLap, s, t)$

$$SolPart := y(t) = -22\,e^{3\,t} + e^{4\,t} + 27\,e^{2\,t} \tag{24}$$

>