```
> restart
> with(inttrans) :
> f := 5·t^3
```
$$f := 5\,t^3 \tag{1}$$

```
> F := laplace(f, t, s)
```
$$F := \frac{30}{s^4} \tag{2}$$

```
> ff := invlaplace(F, s, t)
```
$$ff := 5\,t^3 \tag{3}$$

```
> g := cos(8·t)
```
$$g := \cos(8\,t) \tag{4}$$

```
> G := laplace(g, t, s)
```
$$G := \frac{s}{s^2 + 64} \tag{5}$$

```
> h := sin(8·t)
```
$$h := \sin(8\,t) \tag{6}$$

```
> H := laplace(h, t, s)
```
$$H := \frac{8}{s^2 + 64} \tag{7}$$

```
> restart
> Ecua := diff(y(t), t) − 6·y(t) = 0
```
$$Ecua := \frac{\mathrm{d}}{\mathrm{d}t}\,y(t) - 6\,y(t) = 0 \tag{8}$$

```
> CondIni := y(0) = 4
```
$$CondIni := y(0) = 4 \tag{9}$$

```
> with(inttrans) :
> EcuaTL := subs(CondIni, laplace(Ecua, t, s))
```
$$EcuaTL := s\,laplace(y(t), t, s) - 4 - 6\,laplace(y(t), t, s) = 0 \tag{10}$$

```
> SolTL := isolate(EcuaTL, laplace(y(t), t, s))
```
$$SolTL := laplace(y(t), t, s) = \frac{4}{s - 6} \tag{11}$$

```
> SolPart := invlaplace(SolTL, s, t)
```
$$SolPart := y(t) = 4\,e^{6t} \tag{12}$$

```
> restart
> f := Heaviside(t − 4)
```
$$f := Heaviside(t - 4) \tag{13}$$
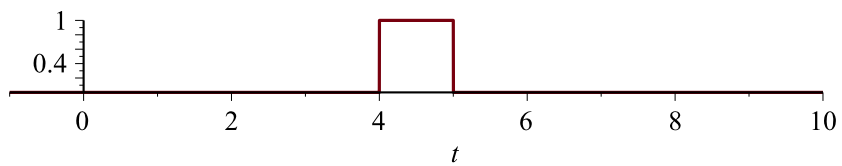
```
> plot(f, t = −1 ..10, scaling = CONSTRAINED)
```
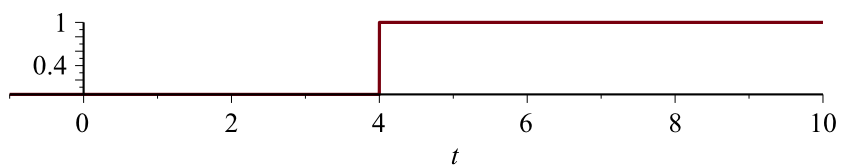
> `with(inttrans)` :

> $F := laplace(f, t, s)$

$$F := \frac{e^{-4s}}{s} \tag{14}$$

> $g := Heaviside(t - 4) - Heaviside(t - 5)$

$$g := Heaviside(t - 4) - Heaviside(t - 5) \tag{15}$$

> $plot(g, t = -1 .. 10, scaling = CONSTRAINED)$

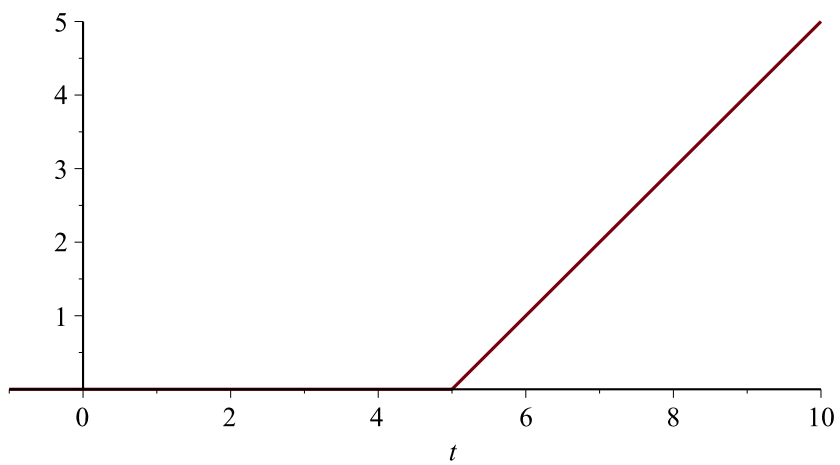> $G := laplace(g, t, s)$

$$G := \frac{e^{-4s} - e^{-5s}}{s} \qquad (16)$$

> $r := (t - 5) \cdot \text{Heaviside}(t - 5)$

$$r := (t - 5)\,\text{Heaviside}(t - 5) \qquad (17)$$

> $plot(r, t = -1 ..10, scaling = CONSTRAINED)$

> $R := laplace(r, t, s)$

$$R := \frac{e^{-5s}}{s^2}$$

(18)

>