

```
> restart
```

```
> f := exp(t - 5)
```

$$f := e^{t-5}$$

(1)

```
> with(inttrans) :
```

```
> F := laplace(f, t, s); evalf(%, 3)
```

$$F := \frac{e^{-5}}{s-1}$$

$$\frac{0.00674}{s-1.}$$

(2)

```
> g := cos(t - 4)
```

$$g := \cos(t-4)$$

(3)

```
> G := laplace(g, t, s); evalf(%, 2)
```

$$G := -\frac{-\cos(4) s - \sin(4)}{s^2 + 1}$$

$$-\frac{1. (0.65 s + 0.76)}{s^2 + 1.}$$

(4)

```
> H := \frac{s}{(s^2 + 2 \cdot s + 2)}
```

$$H := \frac{s}{s^2 + 2 s + 2}$$

(5)

```
> h := invlaplace(H, s, t)
```

$$h := e^{-t} (\cos(t) - \sin(t))$$

(6)

```
> J := \frac{s}{(s^2 + 1)^2}
```

$$J := \frac{s}{(s^2 + 1)^2}$$

(7)

```
> j := invlaplace(J, s, t)
```

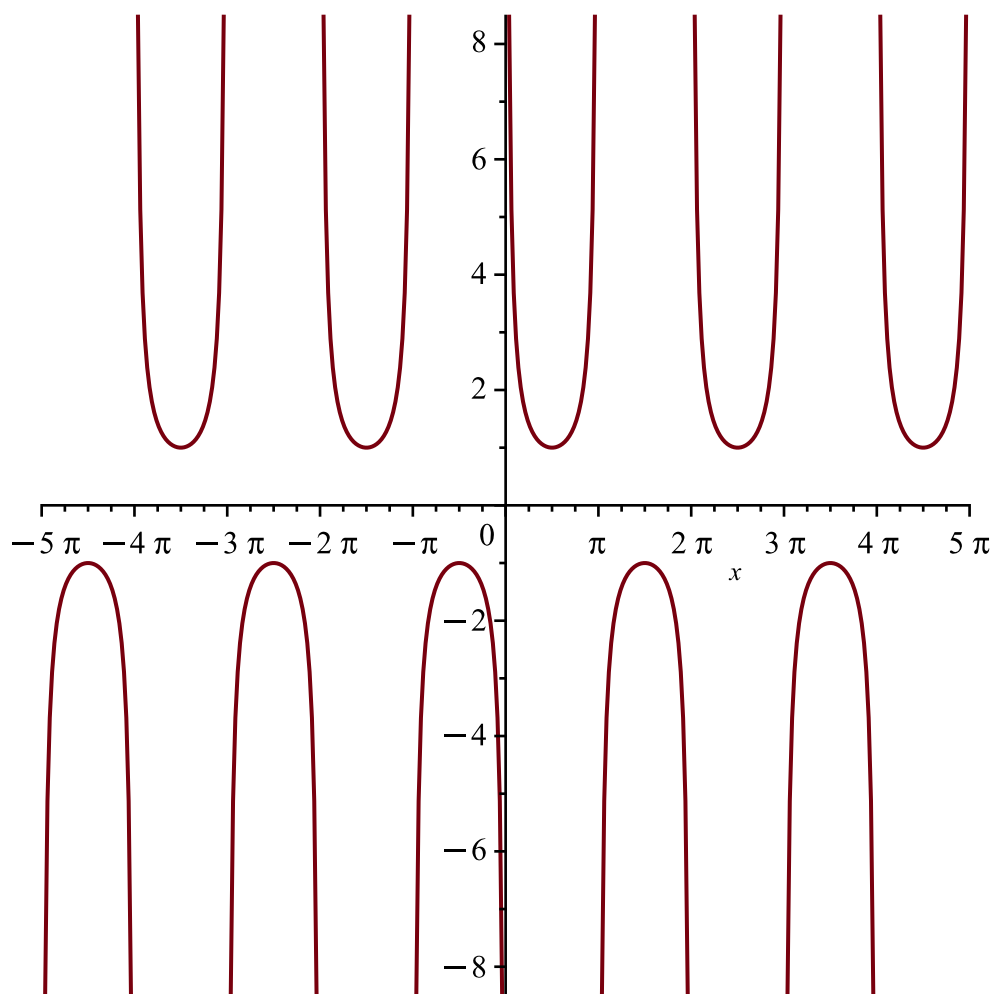
$$j := \frac{t \sin(t)}{2}$$

(8)

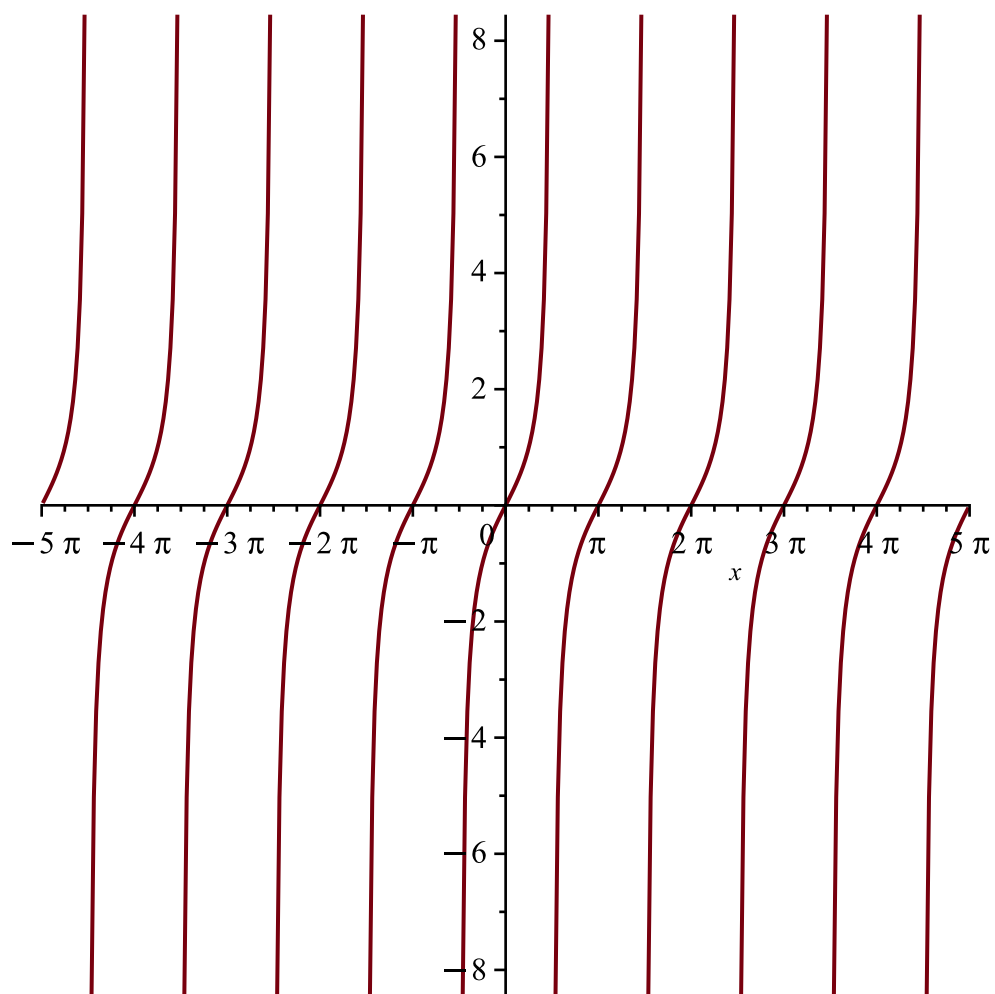
```
>
```

teorema de existencia y unicidad de la Transformada de Laplace

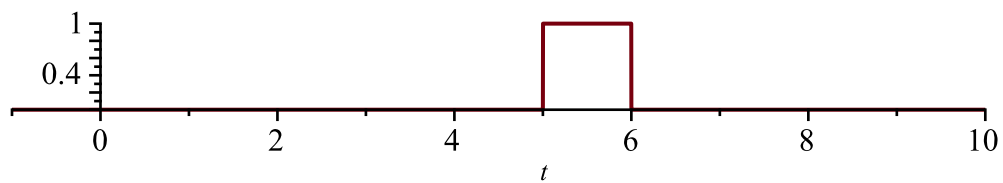
```
> plot(csc(x), x = -5 \cdot Pi .. 5 \cdot Pi)
```



```
> plot(tan(x), x=-5·Pi..5 Pi)
```



> `plot(Heaviside(t - 5) - Heaviside(t - 6), t = -1 .. 10, scaling = CONSTRAINED)`



```
> with(inttrans) :
```

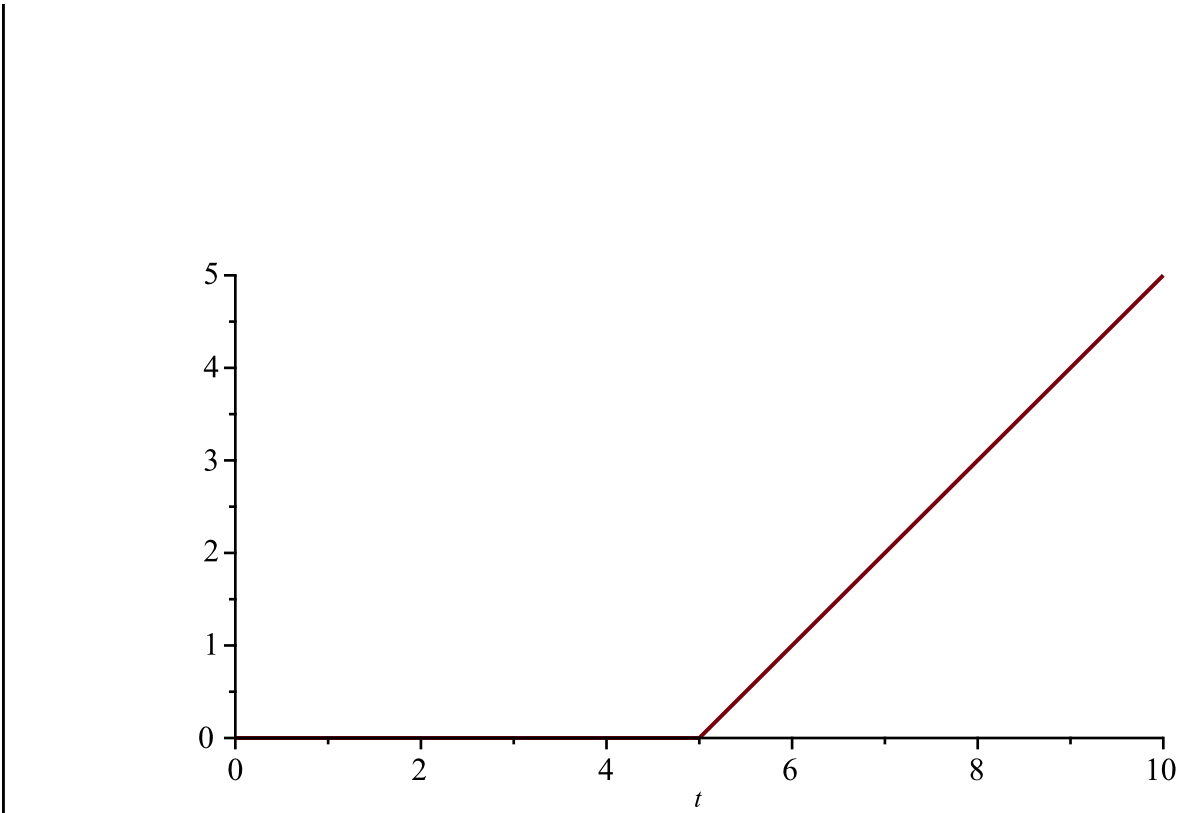
```
> PULSOTRANS := laplace(Heaviside(t - 5) - Heaviside(t - 6), t, s)
```

$$PULSOTRANS := \frac{e^{-5s} - e^{-6s}}{s} \quad (9)$$

```
> Pendiente := (t - 5) · Heaviside(t - 5)
```

$$Pendiente := (t - 5) \text{ Heaviside}(t - 5) \quad (10)$$

```
> plot(Pendiente, t = 0 .. 10, scaling = CONSTRAINED)
```


$$\triangleright \textit{Pentrans} := \textit{laplace}(\textit{Pendiente}, t, s)$$

$$Pentrans := \frac{e^{-5s}}{s^2} \quad (11)$$

$$\triangleright \text{Int}(x^2, x) = \text{int}(x^2, x)$$

$$\int x^2 dx = \frac{x^3}{3} \quad (12)$$