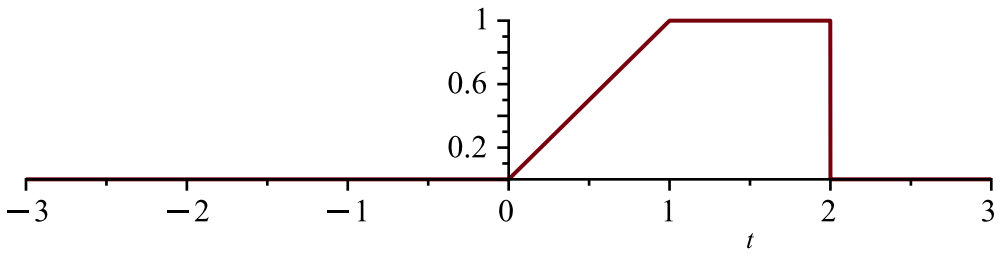
```
> restart
> Ecua := f(t) = {t, 0 ≤ t < 1}, {1, 1 ≤ t < 2}
```

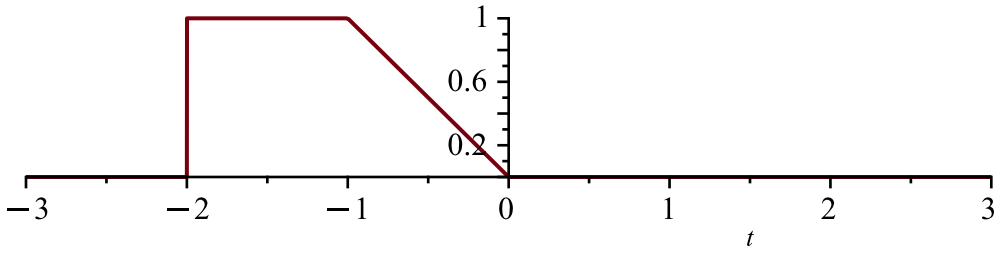
$$Ecua := f(t) = \{t, 0 \le t < 1\}, \{1, 1 \le t < 2\} \quad \textbf{(1)}$$

```
> f := t·Heaviside(t) − (t − 1)·Heaviside(t − 1) − Heaviside(t − 2); plot(f, t = −3..3, scaling
      = CONSTRAINED)
```

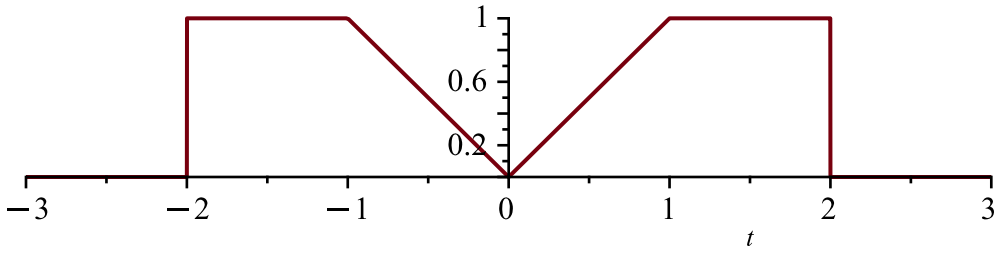
$$f := t\,\mathrm{Heaviside}(t) - (t-1)\,\mathrm{Heaviside}(t-1) - \mathrm{Heaviside}(t-2)$$




```
> g := Heaviside(t + 2) − (t + 1)·Heaviside(t + 1) + t·Heaviside(t) : plot(g, t = −3..3, scaling
      = CONSTRAINED)
```



> $h := f + g : plot(h, t = -3..3, scaling = CONSTRAINED)$



> $L := 3$

$$L := 3 \tag{2}$$

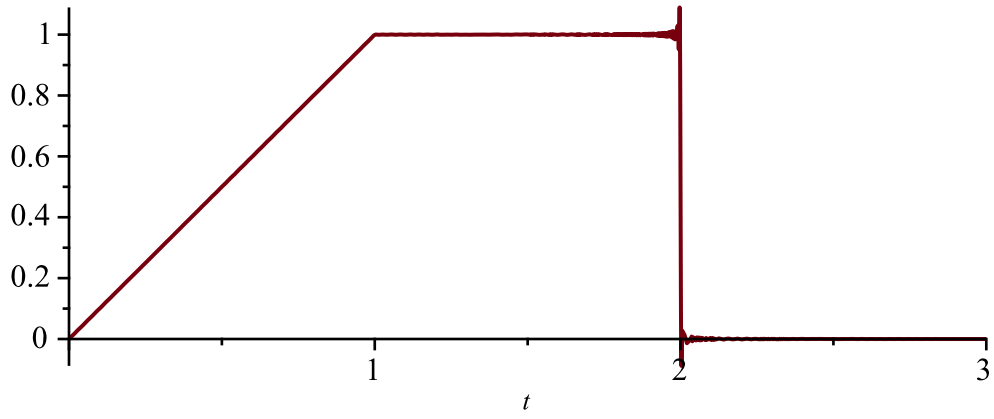
> $a[0] := \frac{1}{L} \cdot int(h, t = -L..L)$

$$a_0 := 1 \tag{3}$$

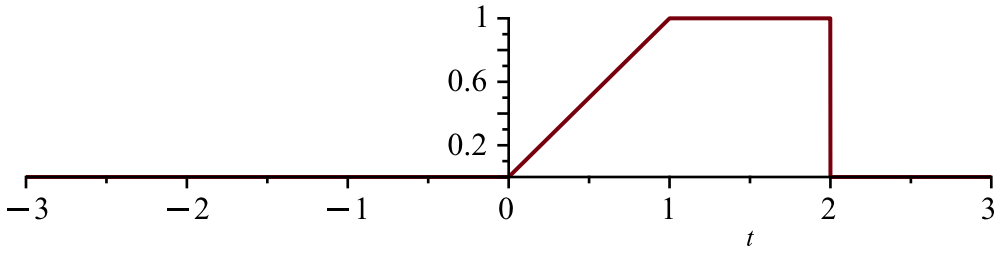
> $a[n] := \frac{1}{L} \cdot int\left(h \cdot \cos\left(\frac{n \cdot \mathrm{Pi}}{L} \cdot t\right), t = -L..L\right) :$

> $STFh := \frac{a[0]}{2} + sum\left(a[n] \cdot \cos\left(\frac{n \cdot \mathrm{Pi}}{L} \cdot t\right), n = 1..1000\right) :$

> $plot(STFh, t = 0..L, scaling = CONSTRAINED)$



> $plot(f, t = -3..3, scaling = CONSTRAINED)$




```
> restart
```

4)

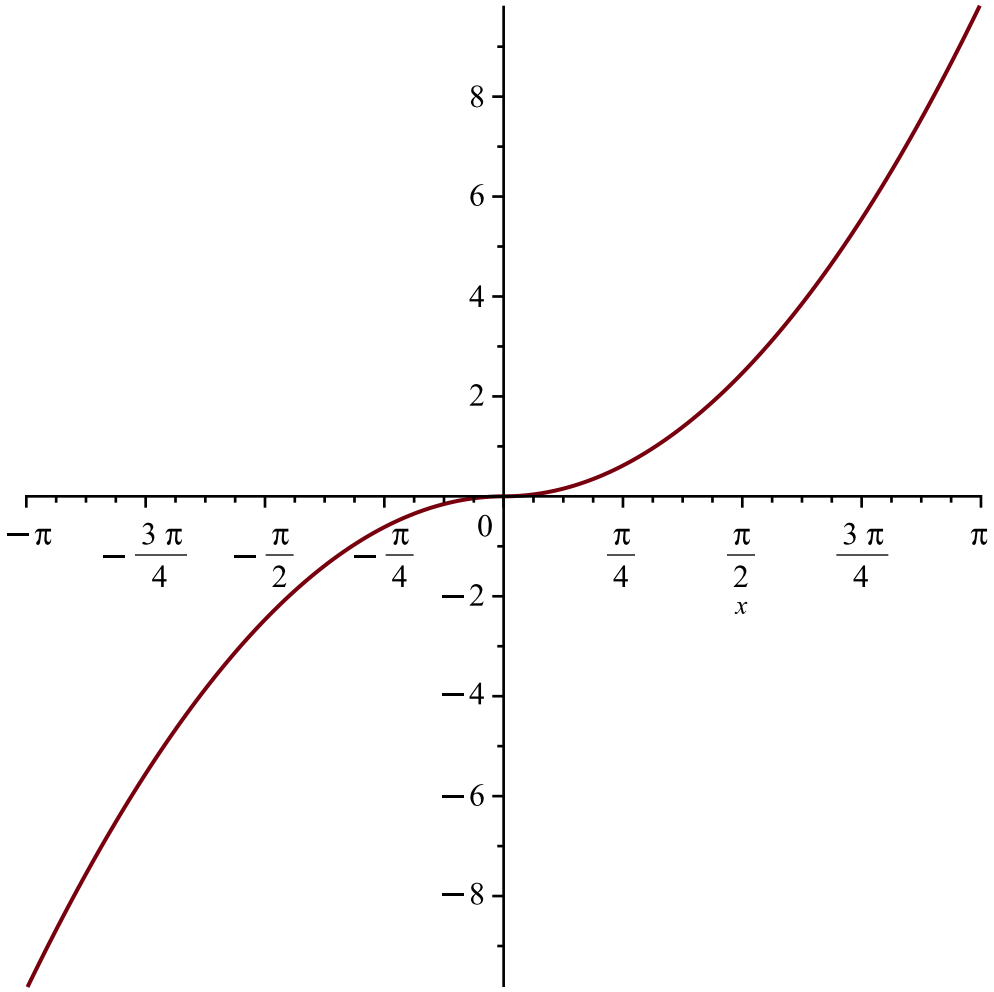
```
> f := x·abs(x)
```

$$f := x\,|x| \tag{4}$$

```
> L := Pi
```

$$L := \pi \tag{5}$$

```
> plot(f, x = −L..L)
```



> $a[0] := \frac{1}{L} \cdot int(f, x = -L..L)$

$$a_0 := 0 \tag{6}$$

> $a[n] := \frac{1}{L} \cdot int\left(f \cdot \cos\left(\frac{n \cdot \mathrm{Pi}}{L} \cdot x\right), x = -L..L\right)$

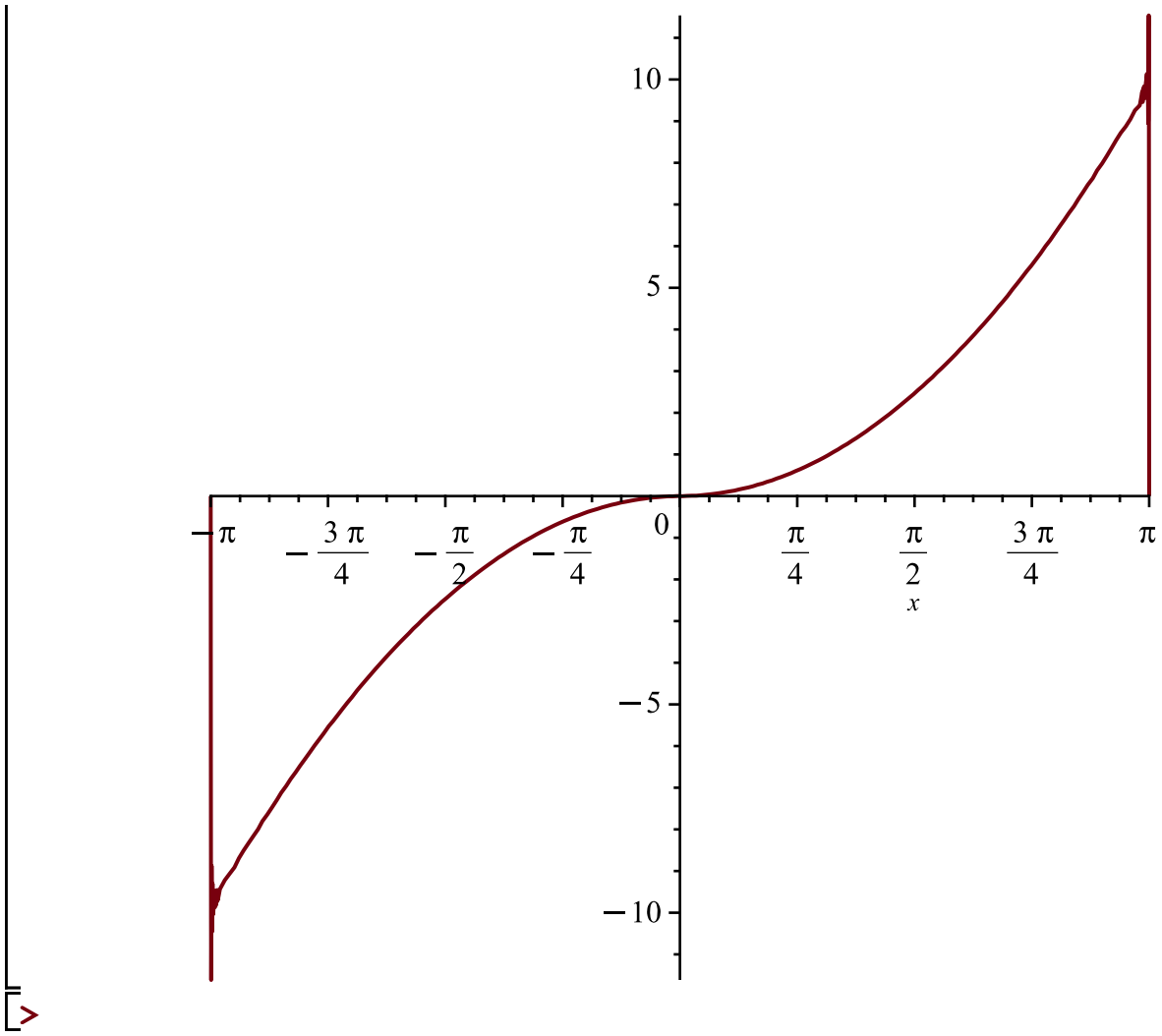
$$a_n := 0 \tag{7}$$

> $b[n] := \frac{1}{L} \cdot int\left(f \cdot \sin\left(\frac{n \cdot \mathrm{Pi}}{L} \cdot x\right), x = -L..L\right)$

$$b_n := -\frac{2\left(n^2 \pi^2 \cos(n\pi) - 2 n \pi \sin(n\pi) - 2\cos(n\pi) + 2\right)}{\pi n^3} \tag{8}$$

> $STFf := sum\left(b[n] \cdot \sin\left(\frac{n \cdot \mathrm{Pi}}{L} \cdot x\right), n = 1..1000\right) :$

> $plot(STFf, x = -L..L)$


10
5
−5
−10
−π
−3π/4
−π/2
−π/4
0
π/4
π/2
3π/4
π
x