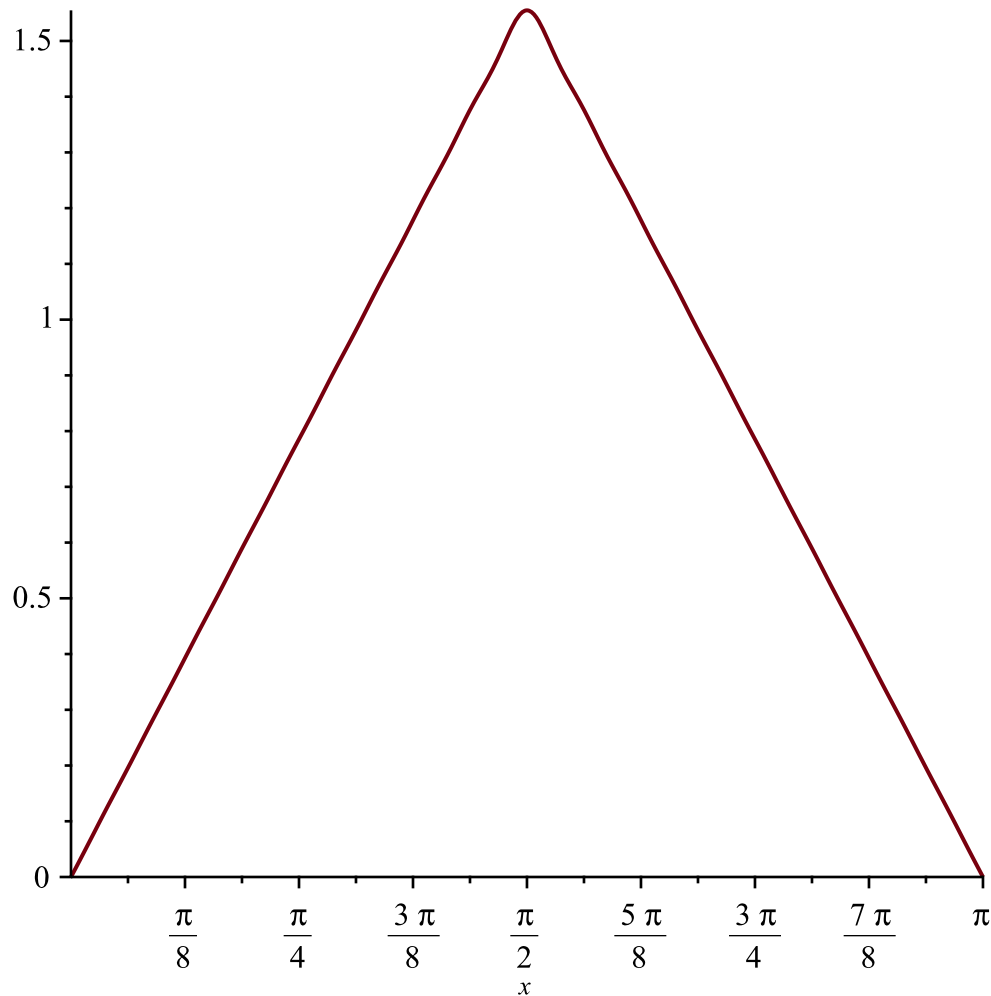


```
> with(plots) :
> u := (x, t) -> (4 / Pi) * sum( (1 / (2 * n - 1) ^ 2) * (-1) ^ (n + 1) * exp( -(2 * n - 1) ^ 2 * t) * sin((2 * n - 1) * x), n = 1 .. 20);
```

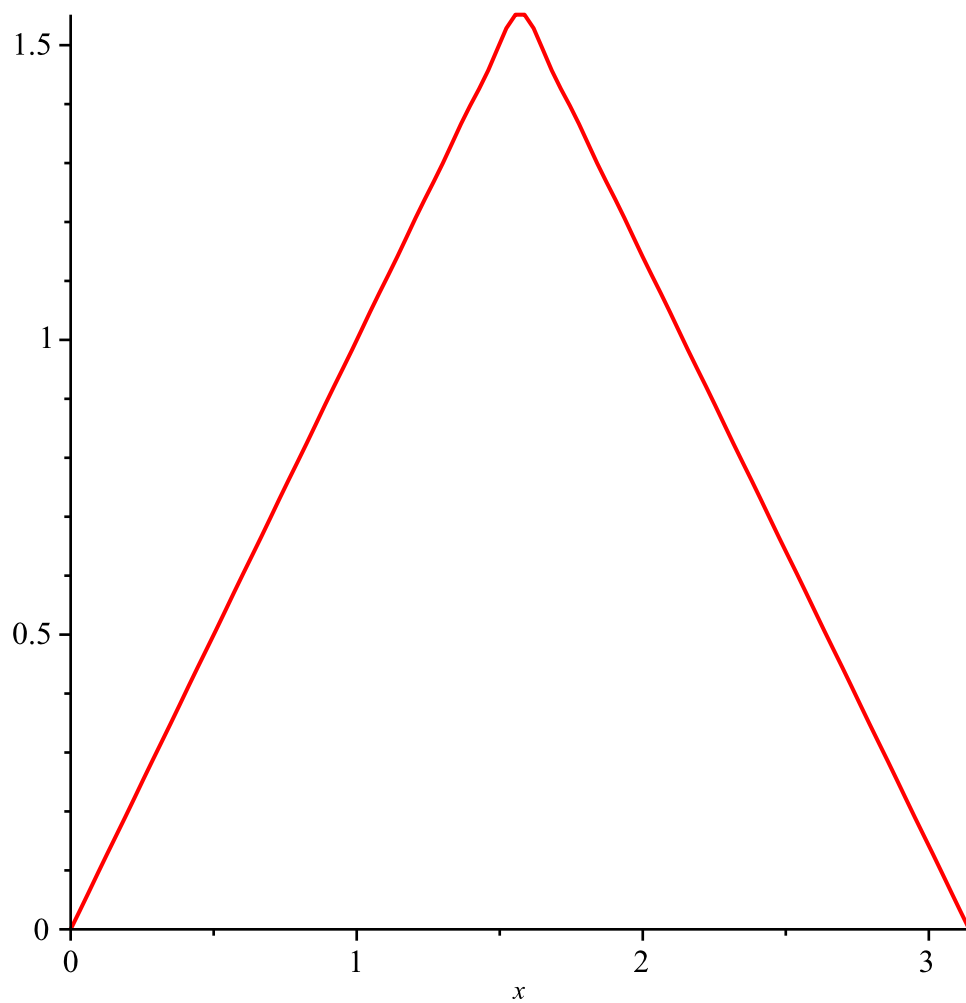
$$u := (x, t) \mapsto \frac{4 \cdot \left(\sum_{n=1}^{20} \frac{(-1)^{n+1} \cdot e^{-(2 \cdot n - 1)^2 \cdot t} \cdot \sin((2 \cdot n - 1) \cdot x)}{(2 \cdot n - 1)^2} \right)}{\pi}$$

(1)

```
> plot(u(x, 0), x = 0 .. Pi);
```



```
> animate(u(x, t), x = 0 .. Pi, t = 0 .. .5, numpoints = 100);
```

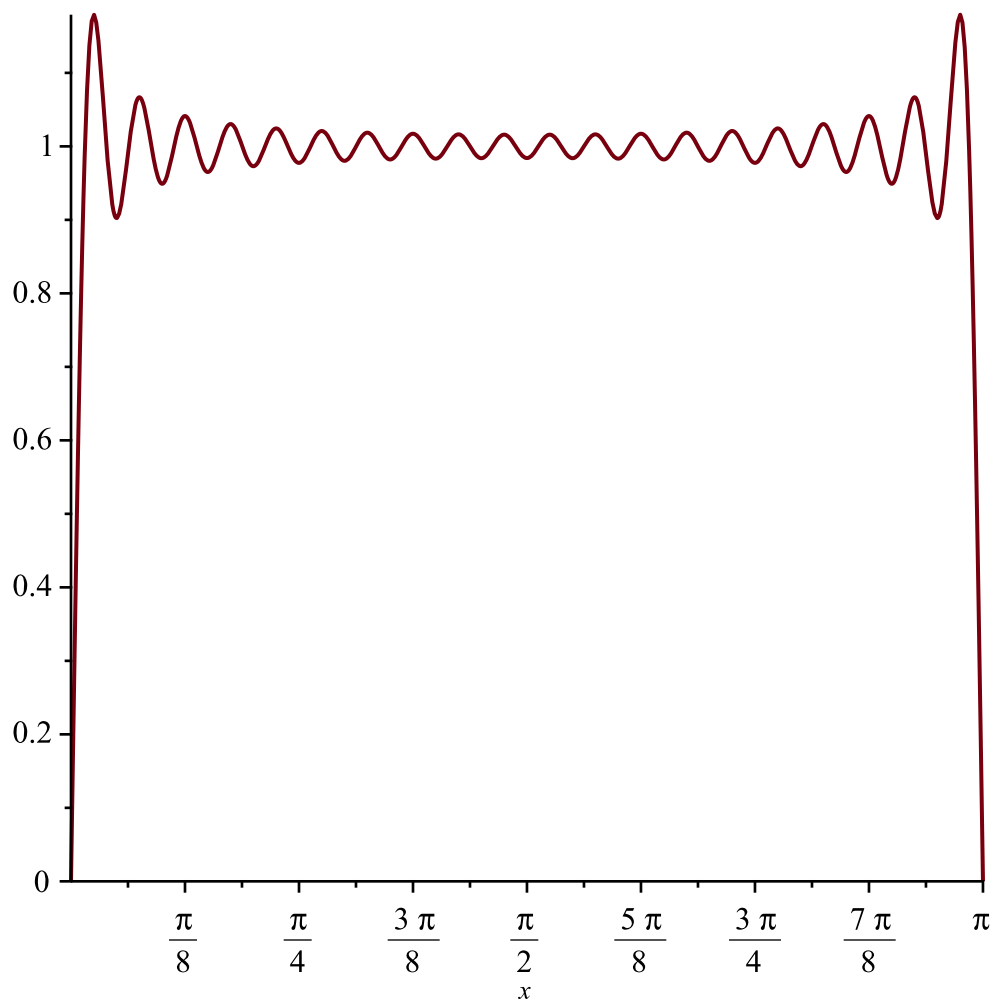


```
> u := (x, t) -> (4 / Pi) * sum( (1 / (2 * n - 1)) * exp(-(2 * n - 1)^2 * t) * sin((2 * n - 1) * x), n = 1 .. 20);
```

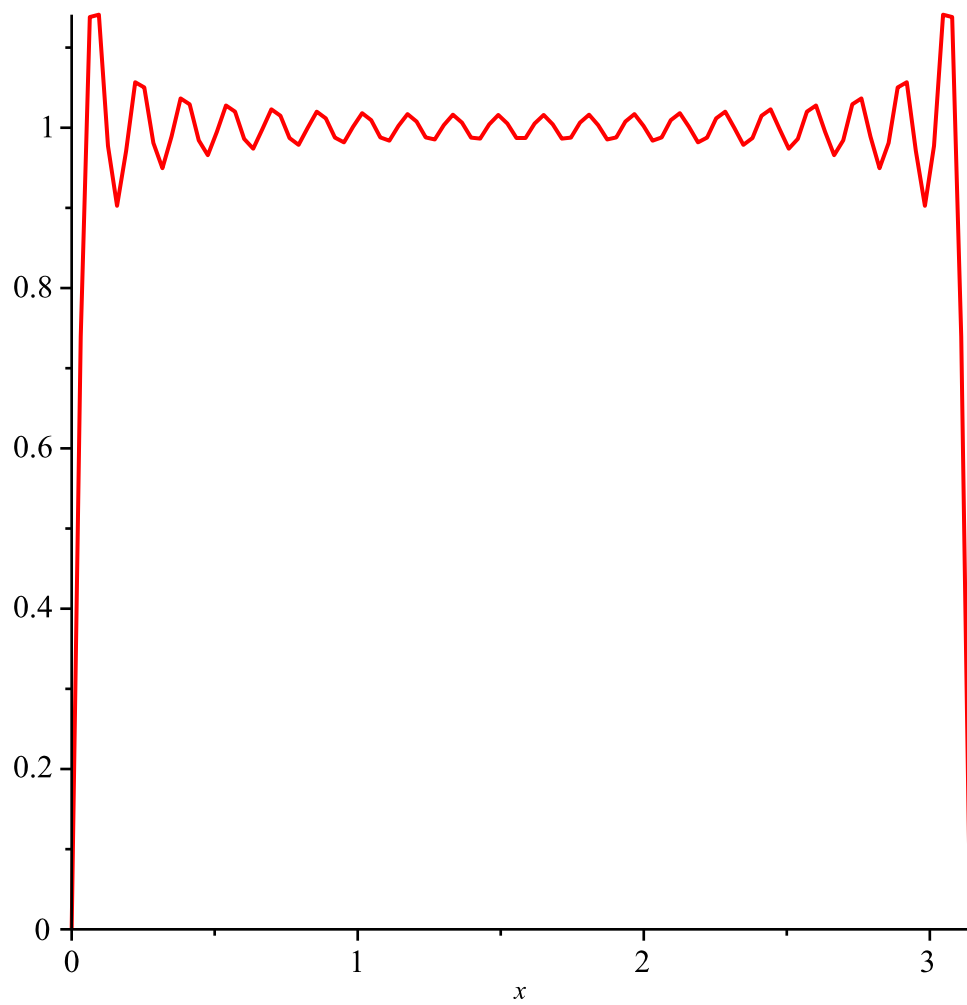
$$u := (x, t) \mapsto \frac{4 \cdot \left(\sum_{n=1}^{20} \frac{e^{-(2 \cdot n - 1)^2 \cdot t} \cdot \sin((2 \cdot n - 1) \cdot x)}{2 \cdot n - 1} \right)}{\pi}$$

(2)

```
> plot(u(x, 0), x = 0 .. Pi);
```



```
> animate(u(x, t), x=0..Pi, t=0..5, numpoints=100);
```



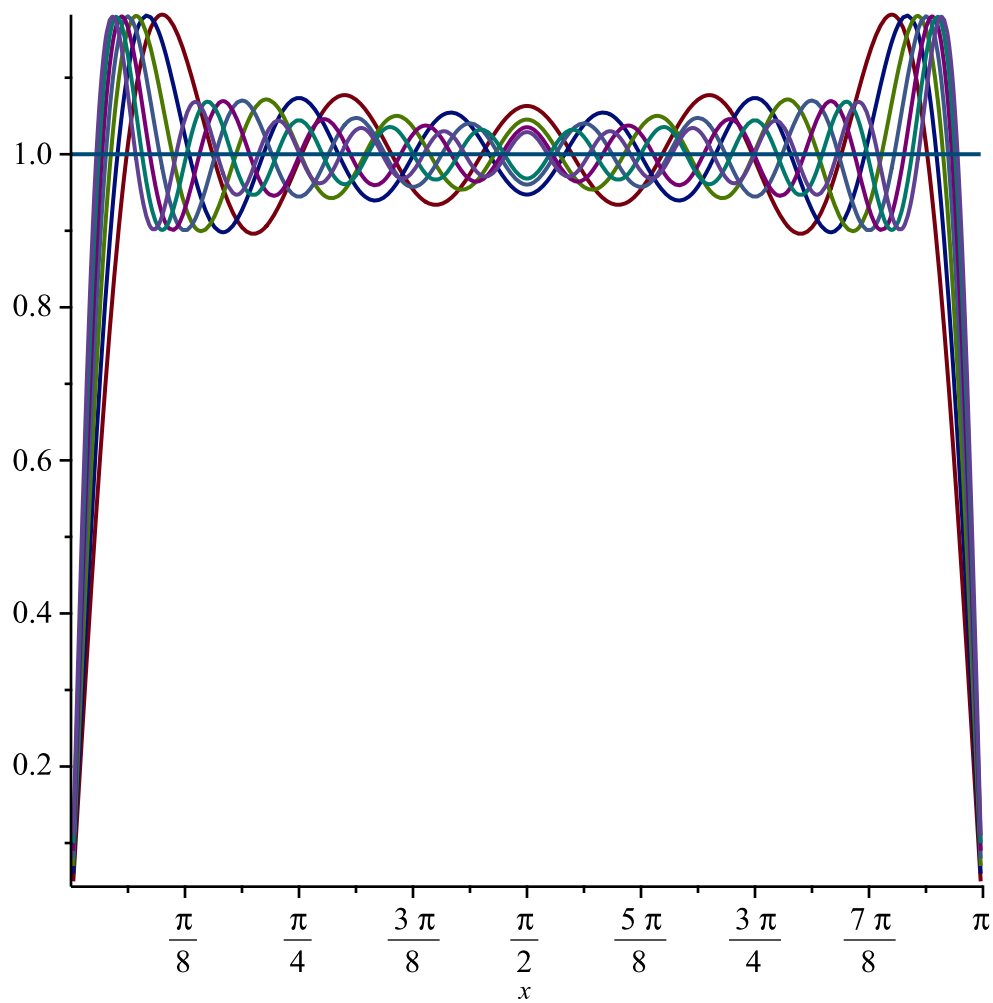
```
> S := (x, N) -> (4 / Pi) * sum((1 / (2 * n - 1)) * sin((2 * n - 1) * x), n = 1 .. N);
```

$$S := (x, N) \mapsto \frac{4 \cdot \left(\sum_{n=1}^N \frac{\sin((2 \cdot n - 1) \cdot x)}{2 \cdot n - 1} \right)}{\pi} \quad (3)$$

```
> L := x -> 2 * Heaviside(x) - 1;
```

$$L := x \mapsto 2 \cdot \text{Heaviside}(x) - 1 \quad (4)$$

```
> plot( {seq(S(x, N), N = 5 .. 11), L(x)}, x = 0 .. Pi);
```



```
> plot( {seq(S(x, N), N=5..11), L(x)}, x=-Pi..Pi);
```

