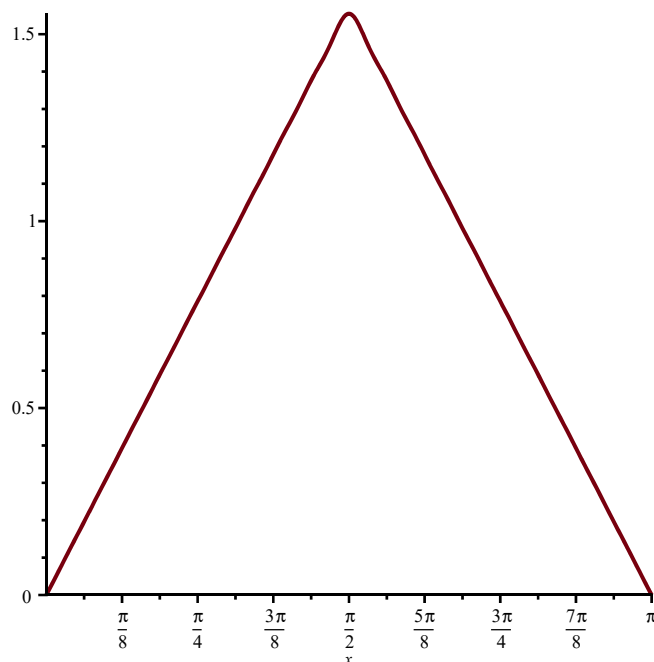


```
> with(plots):
> u := (x,t) -> (4/Pi)*sum((1/(2*n-1)^2)*(-1)^(n+1)*exp(-(2*n-1)^2*t)*sin((2*n-1)*x),n=1..20);
```

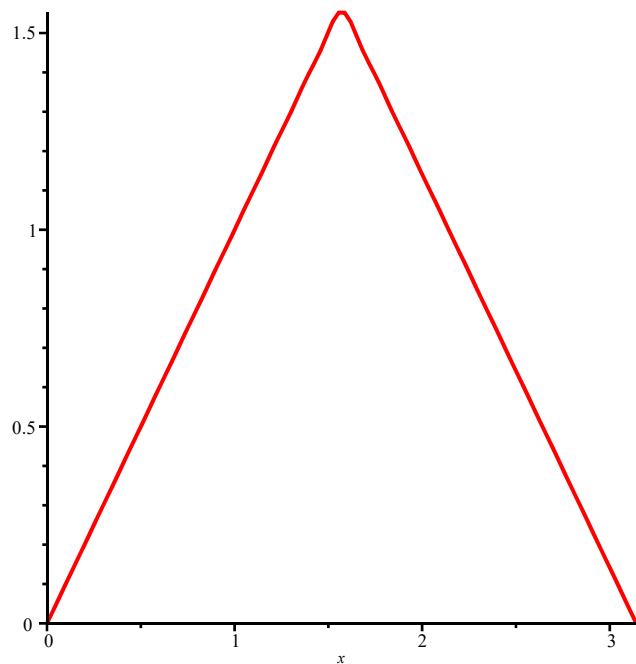
$$u := (x, t) \mapsto \frac{4 \cdot \left(\sum_{n=1}^{20} \frac{(-1)^{n+1} \cdot e^{-(2 \cdot n - 1)^2 \cdot t} \cdot \sin((2 \cdot n - 1) \cdot x)}{(2 \cdot n - 1)^2} \right)}{\pi}$$

(1)

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



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

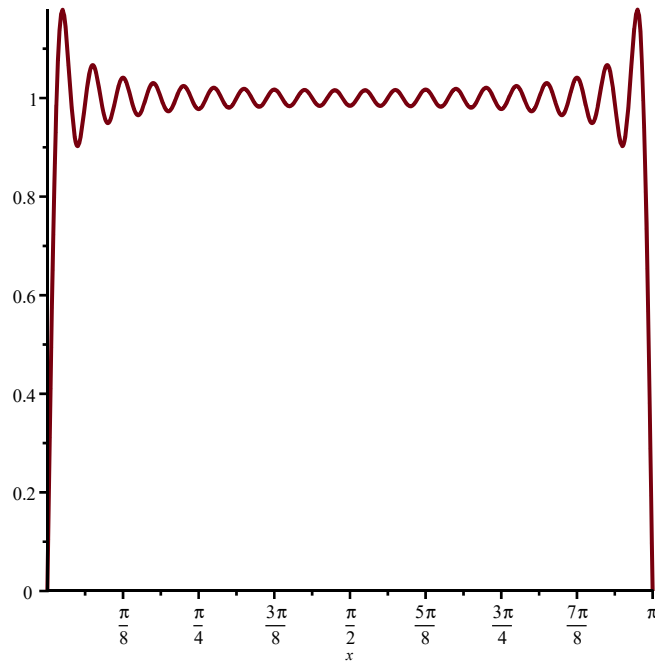


```
> u := (x,t) -> (4/Pi)*sum((1/(2*n-1))*exp(-(2*n-1)^2*t)*sin((2*n-1)*x),n=1..20);
```

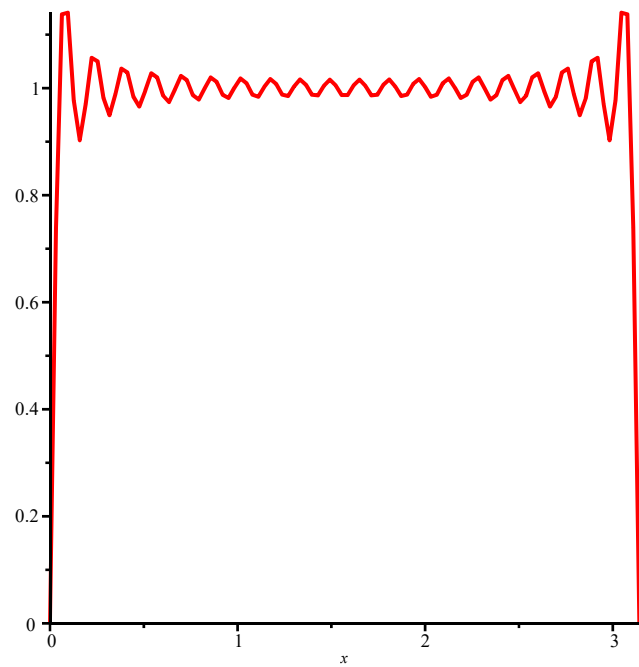
$$u := (x, t) \mapsto \frac{4 \cdot \left(\sum_{n=1}^{20} \frac{e^{-(2 \cdot n - 1)^2 \cdot t} \cdot \sin((2 \cdot n - 1) \cdot x)}{2 \cdot n - 1} \right)}{\pi}$$

(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);
```

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

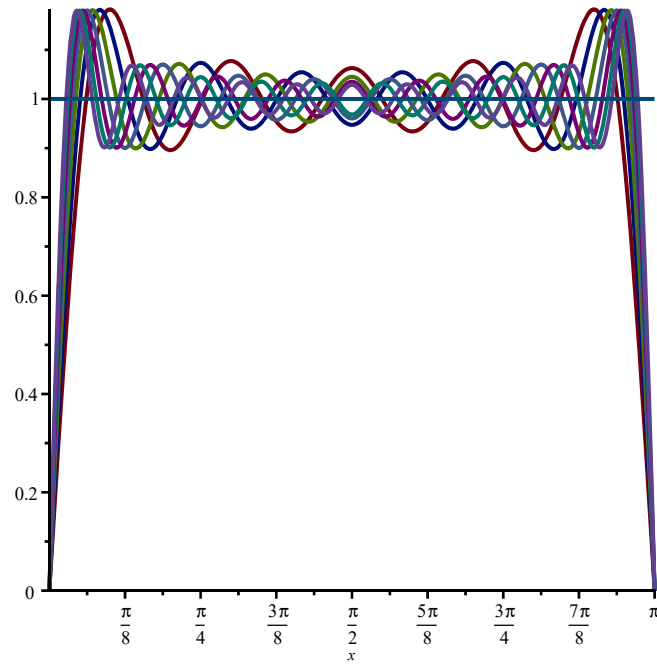
(3)

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

(4)

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

```
> 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);
```

