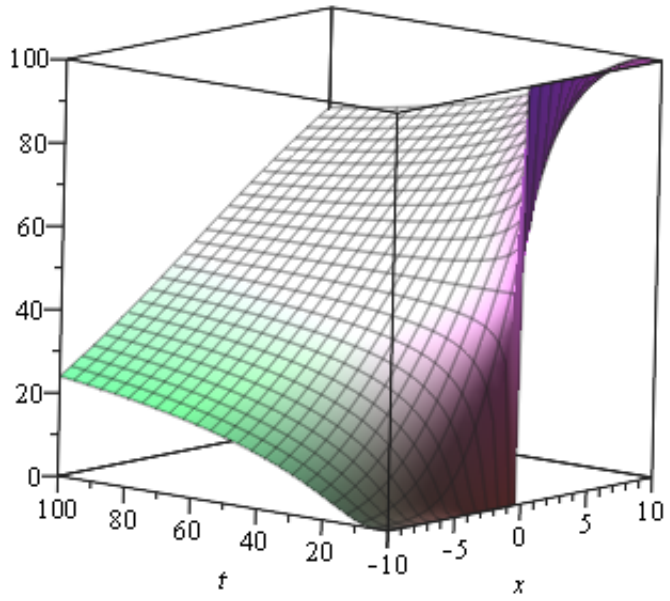
Fourier Heat Equation

```
> u:=(x,t)->50*(1+erf(x/sqrt(4*t)));
```

$$u := (x, t) \to 50 + 50 \operatorname{erf}\left(\frac{x}{\sqrt{4\,t}} \right) \tag{1}$$

```
> plot3d(u(x,t), x=-10..10, t=0..100);
```

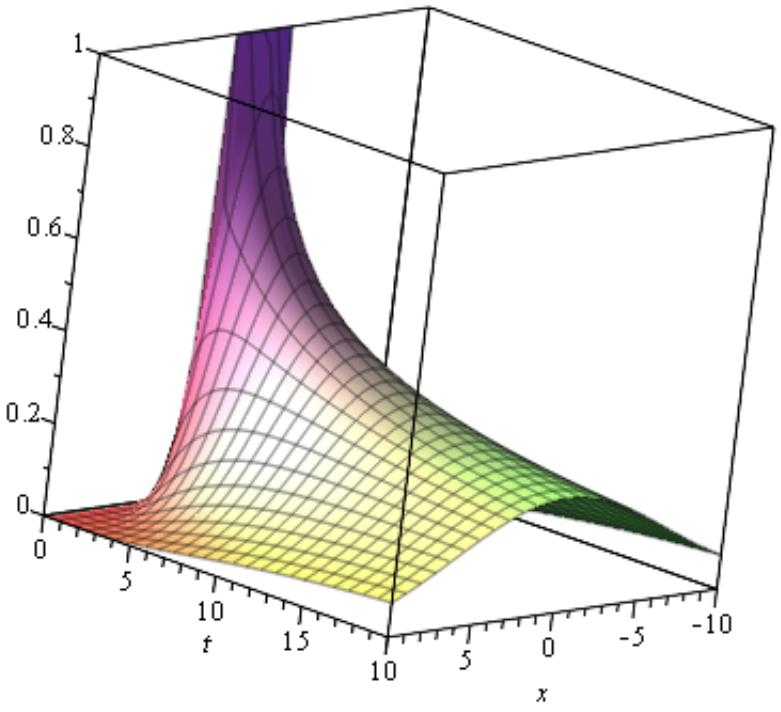


Fourier Convolution

```
> u := (x,t) -> (1/(2*Pi))*int(sqrt(Pi/t)*exp(-(x-s)^2/(4*t)), s=-2..2);
```

$$u := (x, t) \to \frac{1}{2} \frac{\int_{-2}^{2} \sqrt{\frac{\pi}{t}}\, e^{-\frac{1}{4}\frac{(x-s)^2}{t}}\, ds}{\pi} \tag{2}$$

```
> plot3d(u(x,t), x=-10..10, t=0.0001..20);
```


1
0.8
0.6
0.4
0.2
0
0
5
10
t
15
10
5
0
-5
-10
x

>