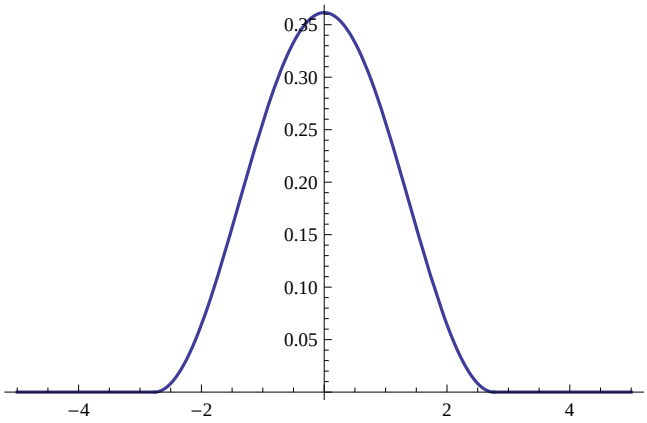
```
sigma = Sqrt[1/3 (-6 + π^2)]
```

$$\sqrt{\frac{1}{3}\left(-6+\pi^2\right)}$$

```
g[x_] := UnitStep[Pi - x] UnitStep[Pi + x] (1 + Cos[x]) / (2 Pi)

h[x_] := sigma g[sigma x]

timedomainplot = Plot[h[x], {x, -5, 5}, PlotStyle → {Thickness[0.005]}]
```

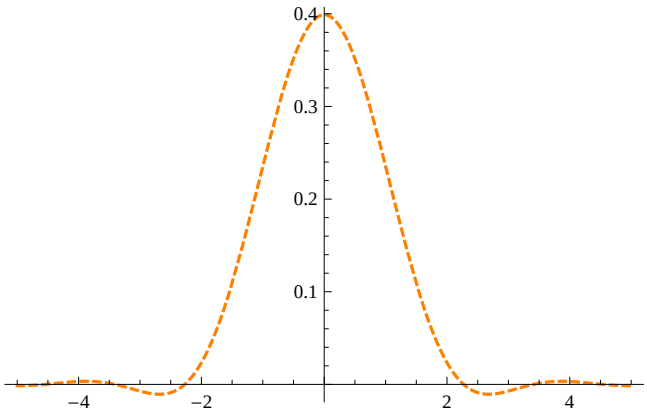



```
FourierTransform[h[x], x, t]
```

$$\frac{\left(-6+\pi^2\right)^{3/2}\,\text{Sin}\left[\pi\sqrt{\frac{3}{-6+\pi^2}}\,t\right]}{\sqrt{6}\,\pi^{3/2}\,t\,\left(-6+\pi^2-3\,t^2\right)}$$

```
ht[t_] := (-6 + π^2)^(3/2) Sin[π Sqrt[3/(-6+π^2)] t] / (Sqrt[6] π^(3/2) t (-6 + π^2 - 3 t^2))

freqdomainplot =
 Plot[ht[t], {t, -5, 5}, PlotStyle → {Orange, Thickness[0.005], Dashing[0.01]}]
```



```
Show[timedomainplot, freqdomainplot, PlotRange → {-0.02, 0.42}]
```