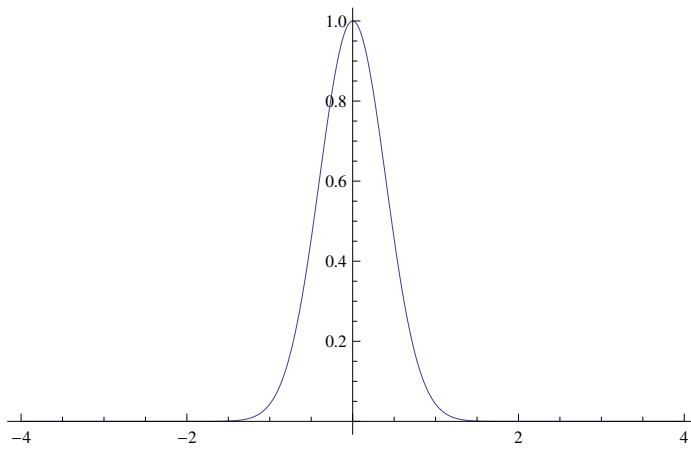


```
In[12]:= ft[s_, t_, v_] := FourierTransform[s, t, v, FourierParameters -> {0, -2 Pi}];
```

```
In[15]:= s = Exp[-Pi t^2];
Plot[s, {t, -4, 4}, PlotRange -> All]
```

Out[16]=



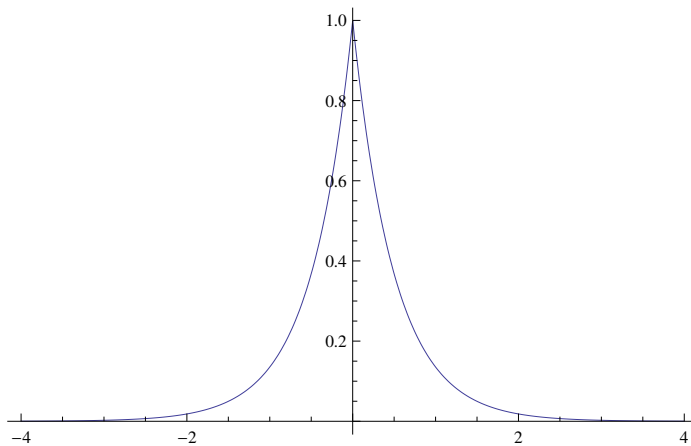
```
In[17]:= ft[s, t, v]
```

Out[17]= $e^{-\pi v^2}$

```
In[18]:= s = Exp[-a Abs[t]];
Plot[s /. a -> 2, {t, -4, 4}, PlotRange -> All]
```

```
In[20]:= Plot[s /. a -> 2, {t, -4, 4}, PlotRange -> All]
```

Out[20]=



```
In[21]:= ft[s, t, v]
```

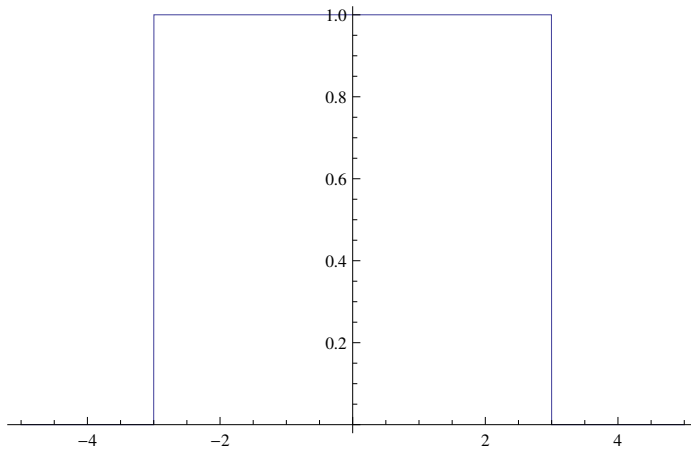
Out[21]= $\frac{2 a}{a^2 + 4 \pi^2 v^2}$

```
In[22]:= $Assumptions = T > 0;
```

```
In[23]:= s = UnitBox[t / (2 T)];
```

In[24]:= `Plot[s /. T → 3, {t, -5, 5}]`

Out[24]=



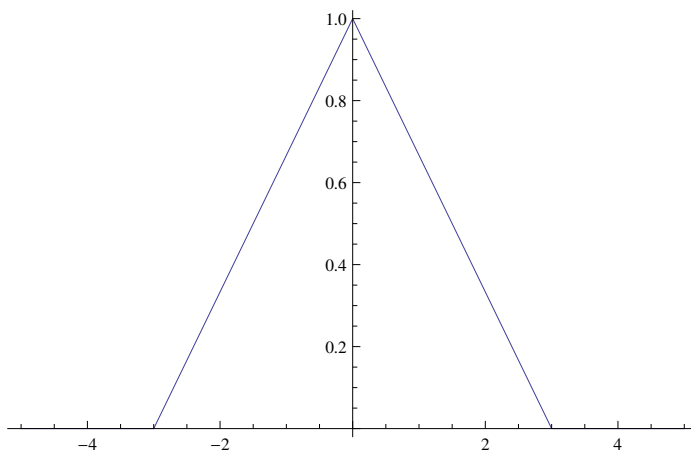
In[25]:= `ft[s, t, v]`

Out[25]= `2 Abs[T] Sinc[2 π T v]`

In[26]:= `s = (1 - Abs[t] / T) UnitBox[t / (2 T)];`

In[27]:= `Plot[s /. T → 3, {t, -5, 5}]`

Out[27]=

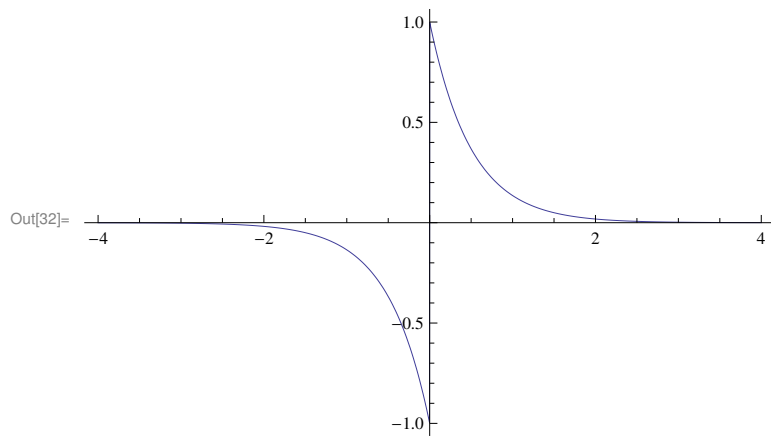


In[30]:= `ft[s, t, v] // FullSimplify`

Out[30]=
$$\frac{\sin[\pi T v]^2}{\pi^2 T v^2}$$

In[31]:= `s = Exp[-a Abs[t]] * Sign[t];`

```
In[32]:= Plot[s /. a → 2, {t, -4, 4}, PlotRange → All]
```

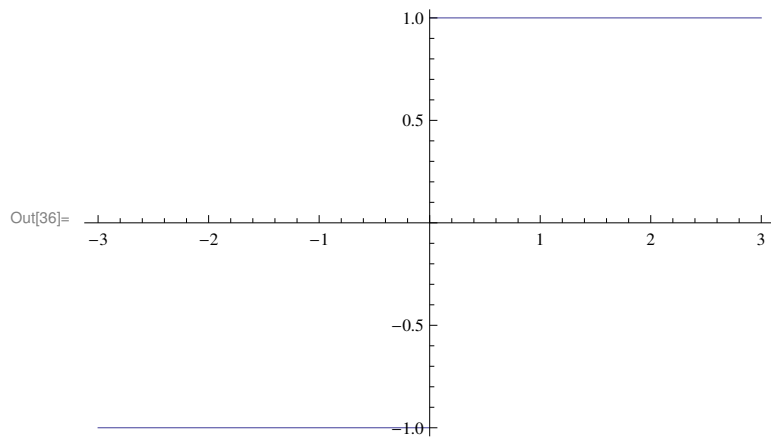


```
In[33]:= ft[s, t, v]
```

Out[33]=
$$-\frac{4 i \pi v}{a^2 + 4 \pi^2 v^2}$$

```
In[35]:= s = Sign[t];
```

```
In[36]:= Plot[s, {t, -3, 3}]
```

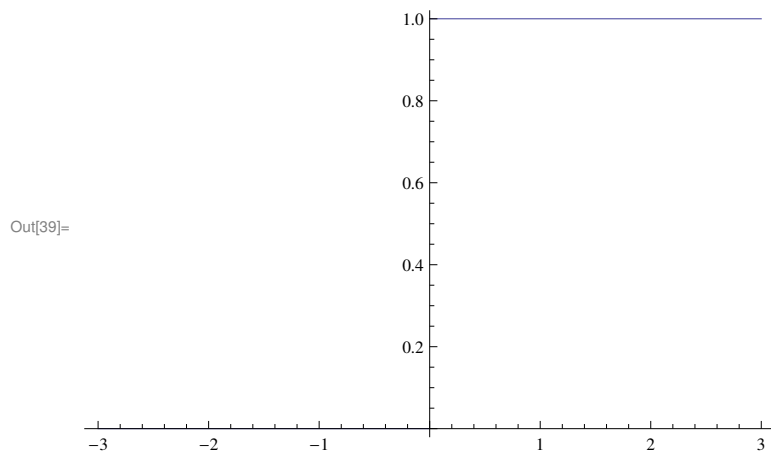


```
In[37]:= ft[s, t, v]
```

Out[37]=
$$-\frac{i}{\pi v}$$

```
In[38]:= s = UnitStep[t];
```

In[39]:= `Plot[s, {t, -3, 3}]`



In[40]:= `ft[s, t, v]`

Out[40]=
$$-\frac{i}{2\pi v} + \frac{\text{DiracDelta}[v]}{2}$$

In[41]:= `s = 1 / t;`

In[42]:= `ft[s, t, v]`

Out[42]=
$$-i\pi \text{Sign}[v]$$