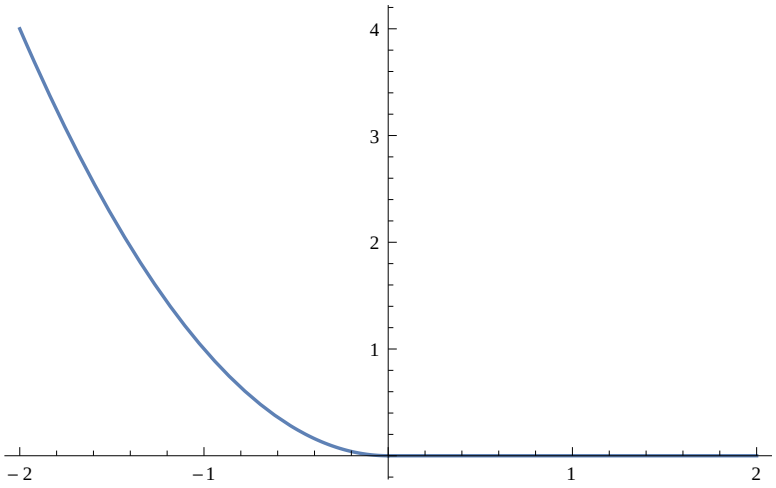
```
Plot[u[x], {x, -2, 2}]
```




```
u[x_] := { x^2   x < 0
         { 0     True
```

```
Limit[Exp[-π / t^2] / t, {t → 0}]
```

```
{0}
```

```
D[Exp[x / t^2], t]
```

$$-\frac{2\, e^{\frac{x}{t^2}}\, x}{t^3}$$

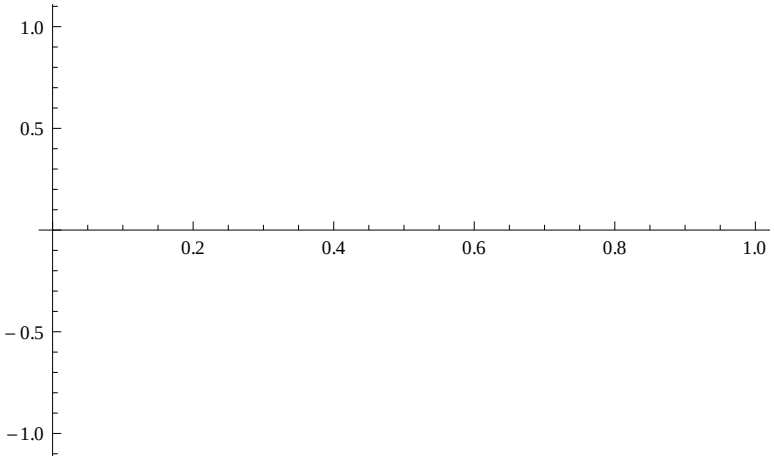
```
f[t_] := Integrate[(2 π t)^(-1/2) Exp[-x^2 / (2 t)], {x, a t, ∞}]; f[t]
```

```
1/2 Erfc[a Sqrt[t] / Sqrt[2]] /. t → 0
```

$$\frac{1}{2}$$

```
$Assumptions = t > 0;
```

```
Plot[f[t], {t, 0.001, 1}]
```



$$\frac{1}{2}\sqrt{\pi}\ \text{Erfc}[0]$$

$$\frac{\sqrt{\pi}}{2}$$

```
p[d_] := a d - b d^2
```

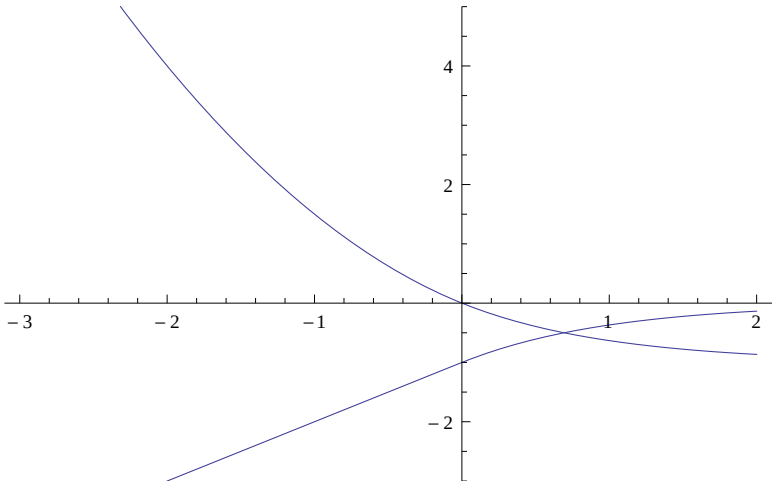
```
u[x_] := Piecewise[{{(a x)^2/2 - a x, x < 0}, {Exp[-a x] - 1, True}}]
```

```
u''[0]
```

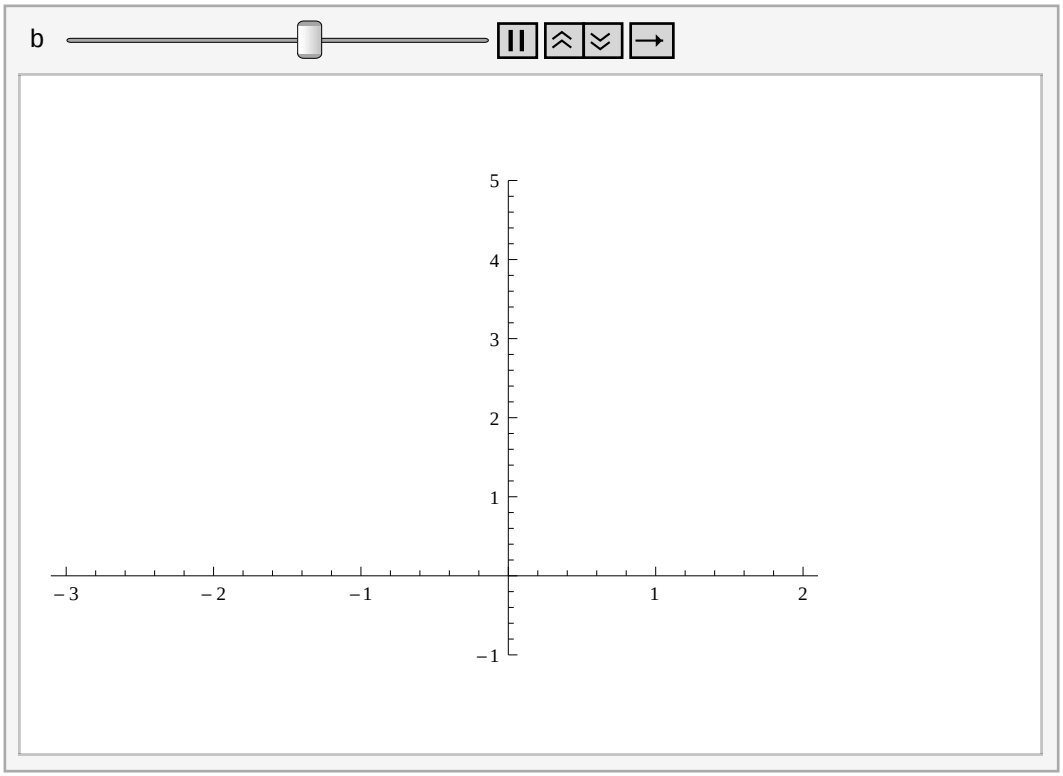
$$a^2$$

```
g[x_] := D[u[y], y] /. y → x
```

```
Plot[{u[x], g[x]} /. {a → 1}, {x, -3, 2}, PlotRange → {-3, 5}]
```



```
Animate[Plot[{u[x] /. a → b}, {x, -3, 2}, PlotRange → {-1, 5}], {b, .1, 2}]
```




```
Plot[g[x], {x, -.9, 4}]
```