In[22]:=
```
Integrate[E^(-Abs[x + y] / u), {x, -w, w},
 Assumptions → Element[w, Reals] && Element[y, Reals] && w > 0]
```

Out[22]=
$$\begin{cases} e^{-\frac{w}{u}-\frac{y}{u}}\left(-1+e^{\frac{2w}{u}}\right)u & w-y<0\&\&w>0\&\&w+y>0 \\ -e^{-\frac{w}{u}-\frac{y}{u}}\left(1+e^{\frac{2y}{u}}-2e^{\frac{w}{u}+\frac{y}{u}}\right)u & w-y>0\&\&w>0\&\&w+y>0 \\ e^{-\frac{w}{u}-\frac{y}{u}}\left(-1+e^{\frac{w}{u}+\frac{y}{u}}\right)u & w-y==0\&\&w>0\&\&w+y>0 \\ 2e^{\frac{y}{u}}u\,\text{Sinh}\left[\frac{w}{u}\right] & \text{True} \end{cases}$$

In[23]:=
```
f[_y, _u, _w] := 
```
$$\begin{cases} e^{-\frac{w}{u}-\frac{y}{u}}\left(-1+e^{\frac{2w}{u}}\right)u & w-y<0\&\&w>0\&\&w+y>0 \\ -e^{-\frac{w}{u}-\frac{y}{u}}\left(1+e^{\frac{2y}{u}}-2e^{\frac{w}{u}+\frac{y}{u}}\right)u & w-y>0\&\&w>0\&\&w+y>0 \\ e^{-\frac{w}{u}-\frac{y}{u}}\left(-1+e^{\frac{w}{u}+\frac{y}{u}}\right)u & w-y==0\&\&w>0\&\&w+y>0 \\ 2e^{\frac{y}{u}}u\,\text{Sinh}\left[\frac{w}{u}\right] & \text{True} \end{cases}$$

In[26]:=
```
LogPlot[f[x, 10, 1], {x, 0, 100}]
```

Out[26]=