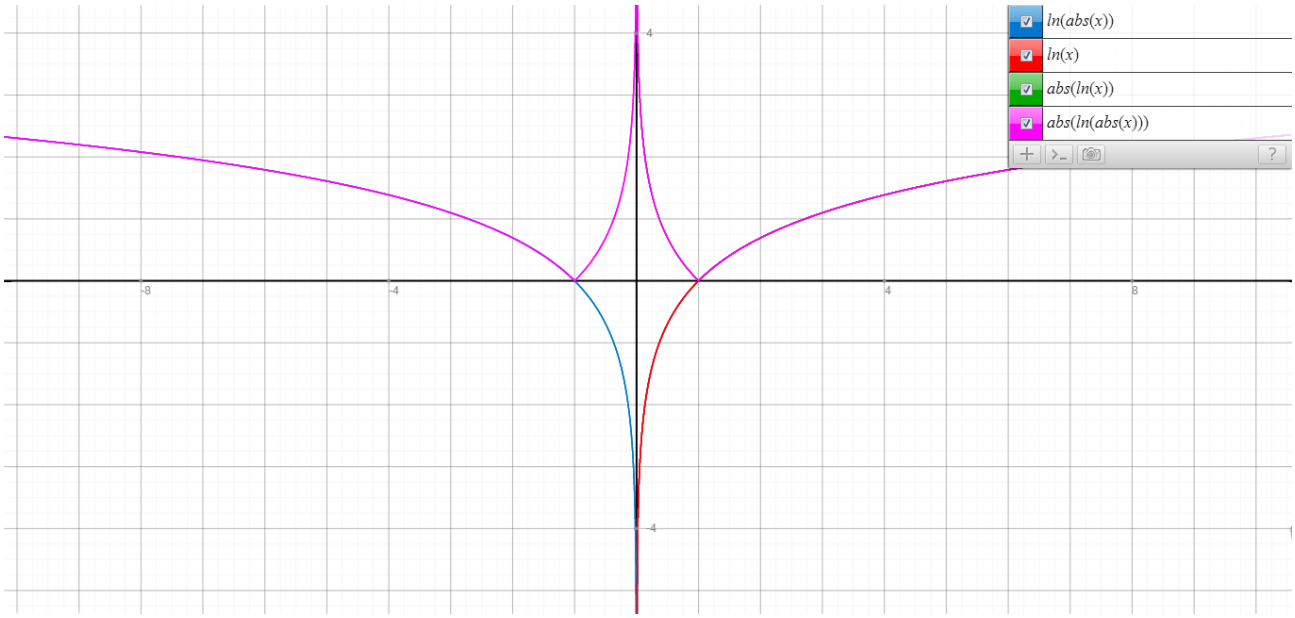
Solution:



We can see from the graph, that total area equals 0. Let's prove it algebraic:

The purple line corresponds to $|\ln|x||$. The first part of area is:

$$S_1 = \int_{-1}^{1} |\ln|x||dx$$

Use integration by parts:

$$S_1 = \int_{-1}^{1} |\ln|x||dx = |\ln|x|||_{-1}^{1} - \int_{-1}^{1} x\frac{sgnx}{|x|}dx = 2$$

The second part of area is:

Blue line on the graph corresponds to $\ln|x|$

So

$$S_2 \int_{-1}^{0} \ln|x| = -1$$

The third part of the area is:

Red line in the graph corresponds to lnx

So

$$S_3 = \int_{0}^{1} lnx = -1$$

The total area is:

$$S_{total} = S_1 + S_2 + S_3 = 2 - 1 - 1 = 0$$

Answer: $S_{total} = 0$