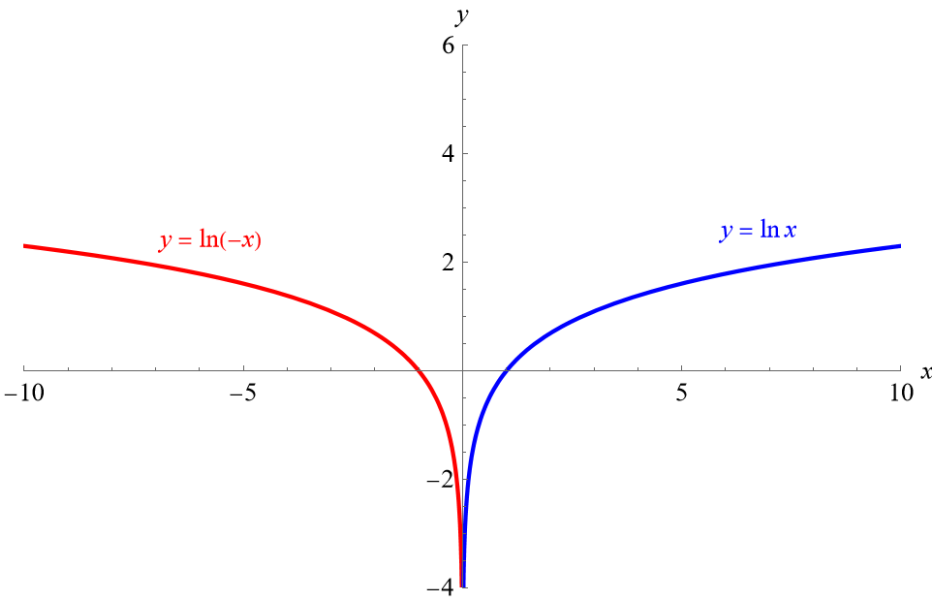
Exercise 266

For the following exercises, sketch the graph of the logarithmic function. Determine the domain, range, and vertical asymptote.

$$f(x) = \ln(-x)$$

Solution

Changing the argument from x to $-x$ reflects the entire graph about the y-axis.



The argument of a logarithm must be greater than zero.

$$-x > 0$$

$$x < 0$$

$$\begin{aligned} \text{Domain:} \quad & \{x \mid x < 0\} \\ \text{Range:} \quad & \{y \mid -\infty < y < \infty\} \\ \text{Vertical Asymptote:} \quad & x = 0 \end{aligned}$$