

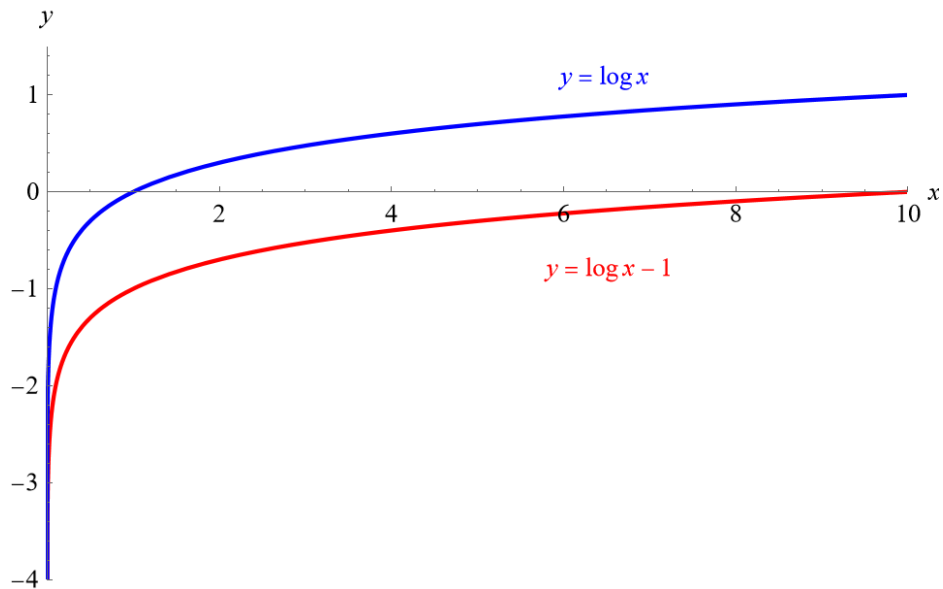
## Exercise 268

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

$$f(x) = \log x - 1$$

### Solution

Subtracting 1 translates the entire graph down by 1 unit.



The argument of a logarithm must be greater than zero.

$$\text{Domain: } \{x \mid x > 0\}$$

$$\text{Range: } \{y \mid -\infty < y < \infty\}$$

$$\text{Vertical Asymptote: } x = 0$$