

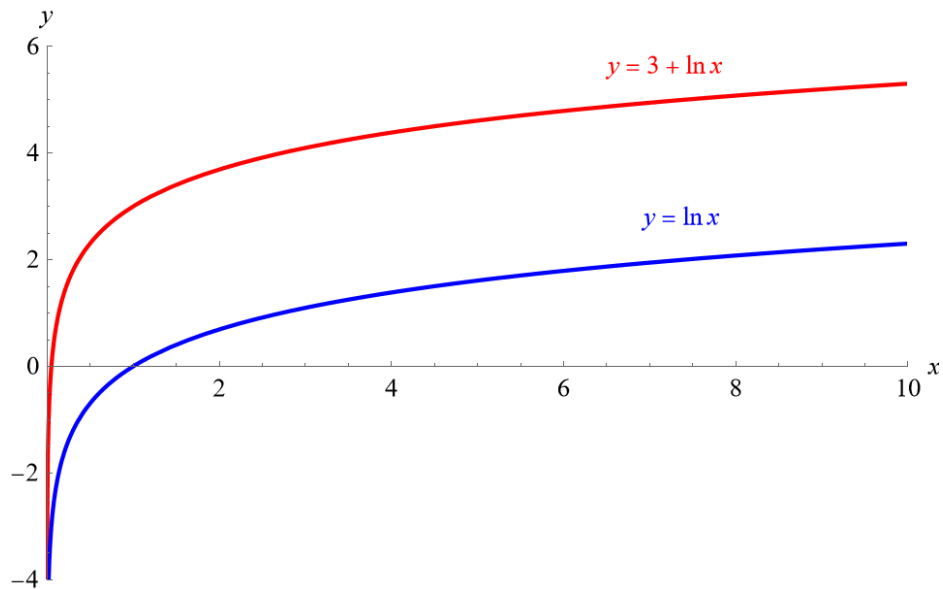
Exercise 264

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

$$f(x) = 3 + \ln x$$

Solution

Adding 3 to the logarithm translates the entire graph up by 3 units.



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

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

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