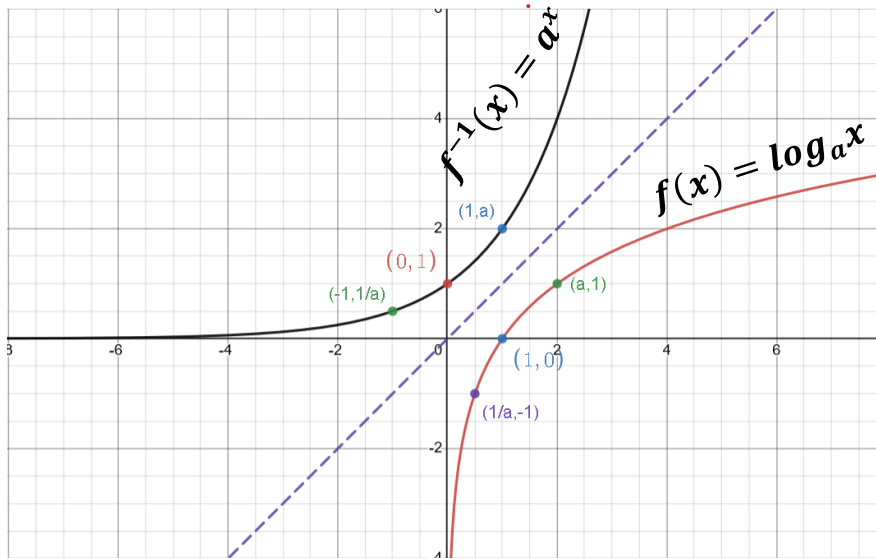


## Logarithmic Inverse Function

For  $a > 0$



$$f(x) = \log_a x$$

Domain:  $(0, \infty)$

Range:  $(-\infty, \infty)$

Vertical Asymptote:  $x = 0$

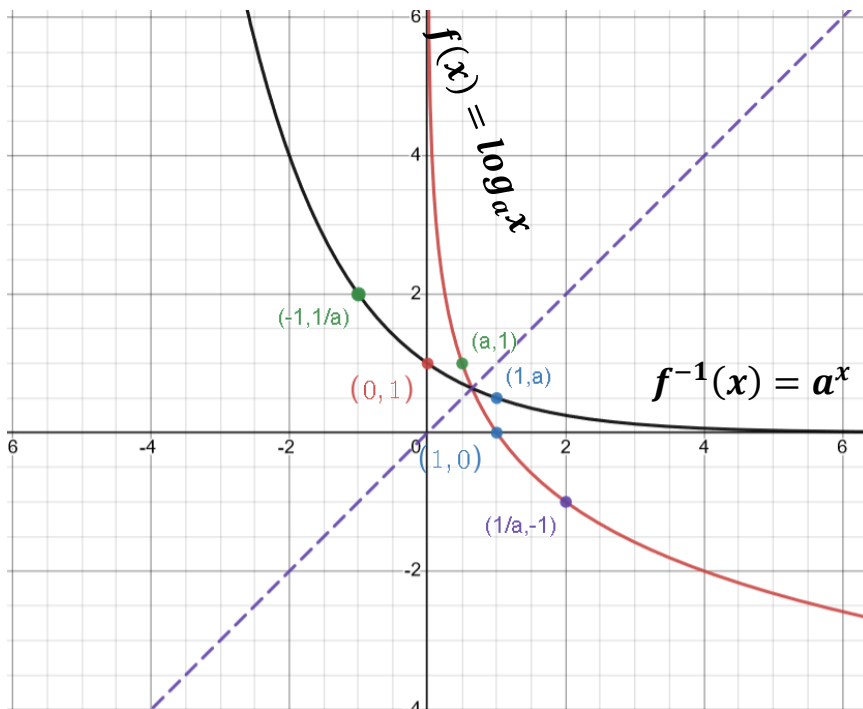
$$f^{-1}(x) = a^x$$

Domain:  $(-\infty, \infty)$

Range:  $(0, \infty)$

Horizontal Asymptote:  
 $y = 0$

For  $0 < a < 1$



$$f(x) = \log_a x$$

Domain:  $(0, \infty)$

Range:  $(-\infty, \infty)$

Vertical Asymptote:  $x = 0$

$$f^{-1}(x) = a^x$$

Domain:  $(-\infty, \infty)$

Range:  $(0, \infty)$

Horizontal Asymptote:  
 $y = 0$