Exercise 191

For the following exercises, a. find the inverse function, and b. find the domain and range of the inverse function.

$$f(x) = x^3 + 1$$

Solution

To find the inverse function, replace x with y and replace $f(x)$ with x.

$$x = y^3 + 1$$

Solve for y.

$$y^3 = x - 1$$

$$y = \sqrt[3]{x - 1}$$

The domain of this inverse function is

$$\{x \mid -\infty < x < \infty\},$$

and the range is $\{y \mid -\infty < y < \infty\}$.