Exercise 36

For the following exercises, evaluate or solve, assuming that the function f is one-to-one.

If $f^{-1}(-2) = -1$, find $f(-1)$.

Solution

Start by assuming that f is a one-to-one function (meaning it has an inverse) and

$$f^{-1}(-2) = -1.$$

Apply f to both sides.

$$f(f^{-1}(-2)) = f(-1)$$

The function and its inverse cancel on the left side, leaving -2.

$$-2 = f(-1)$$

Therefore,

$$f(-1) = -2.$$