Exercise 35

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

If $f^{-1}(-4) = -8$, find $f(-8)$.

Solution

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

$$f^{-1}(-4) = -8.$$

Apply f to both sides.

$$f(f^{-1}(-4)) = f(-8)$$

The function and its inverse cancel on the left side, leaving -4.

$$-4 = f(-8)$$

Therefore,

$$f(-8) = -4.$$