

An inverse function reverses the original function.

Graphically, it reflects the original function over the line $y = x$

Inverse Functions (A)

Find $f^{-1}(3)$ if $f(x) = x - 8$.

$$a = f^{-1}(3)$$

$$f(a) = 3$$

$$a - 8 = 3$$

$$a = 11$$

$$\text{so } f^{-1}(3) = 11$$

If the range of f^{-1} is $-3 \leq y \leq 1$, find the domain of f .

$$-3 \leq x \leq 1$$

Find $f^{-1}(x)$ if $f(x) = 3x - 1$.

$$y = 3x - 1$$

Replace x with y and replace y with x :

$$x = 3y - 1$$

$$x + 1 = 3y$$

$$y = \frac{x + 1}{3}$$

$$f^{-1}(x) = \frac{x + 1}{3}$$