The inverse of function f is denoted by f^{-1}. Read f^{-1} as "the inverse of f" or as "f inverse." The notation $f(x)$ is used for functions, but the relation f^{-1} may not even be a function.

The range of the relation is the domain of the inverse, and the domain of the relation is the range of the inverse.

Consider the function $f(x) = \sqrt{x + 1}$.

a. Find the domain and range of f.

b. Find f^{-1}.

c. Find the domain and range of f^{-1}.

d. Is f^{-1} a function? Explain.

Let $f(x) = 10 - 3x$. Find each of the following.

a. the domain and range of f b. f^{-1}

c. the domain and range of f^{-1} d. $f^{-1}(f(3))$

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

For each function f, find f^{-1} and the domain and range of f and f^{-1}. Determine whether f^{-1} is a function.

23. $f(x) = 3x + 4$

24. $f(x) = \sqrt{x - 5}$

25. $f(x) = \sqrt{x + 7}$

26. $f(x) = \sqrt{-2x + 3}$

27. $f(x) = 2x^2 + 2$

28. $f(x) = -x^2 + 1$

Graph the function, it's inverse and y=x in Desmos for problems 23-28