

Inverse Functions - Graphing

Inverse Functions - Graphing

► We defined an inverse function in the following way:

Inverse Functions - Graphing

► We defined an inverse function in the following way:

If $y = f(x)$ is a 1-1 function, then $y = f^{-1}(x)$ is the *inverse function* if:

Inverse Functions - Graphing

► We defined an inverse function in the following way:

If $y = f(x)$ is a 1-1 function, then $y = f^{-1}(x)$ is the *inverse function* if:

- $x = f^{-1}(f(x))$
- Domain of $f^{-1} = \text{Range of } f$
- Range of $f^{-1} = \text{Domain of } f$

Inverse Functions - Graphing

► We defined an inverse function in the following way:

If $y = f(x)$ is a 1-1 function, then $y = f^{-1}(x)$ is the *inverse function* if:

- $x = f^{-1}(f(x))$
- Domain of $f^{-1} = \text{Range of } f$
- Range of $f^{-1} = \text{Domain of } f$

So, the inverse of a function $y = f(x)$ switches the roles of x and y

Inverse Functions - Graphing

► We defined an inverse function in the following way:

If $y = f(x)$ is a 1-1 function, then $y = f^{-1}(x)$ is the *inverse function* if:

- $x = f^{-1}(f(x))$
- Domain of $f^{-1} = \text{Range of } f$
- Range of $f^{-1} = \text{Domain of } f$

So, the inverse of a function $y = f(x)$ switches the roles of x and y

The input of f^{-1} is output of f ; the output of f^{-1} is input of f

Inverse Functions - Graphing

► We defined an inverse function in the following way:

If $y = f(x)$ is a 1-1 function, then $y = f^{-1}(x)$ is the *inverse function* if:

- $x = f^{-1}(f(x))$
- Domain of $f^{-1} = \text{Range of } f$
- Range of $f^{-1} = \text{Domain of } f$

So, the inverse of a function $y = f(x)$ switches the roles of x and y

The input of f^{-1} is output of f ; the output of f^{-1} is input of f
Domain Range Range Domain

Inverse Functions - Graphing

► We defined an inverse function in the following way:

If $y = f(x)$ is a 1-1 function, then $y = f^{-1}(x)$ is the *inverse function* if:

- $x = f^{-1}(f(x))$
- Domain of $f^{-1} = \text{Range of } f$
- Range of $f^{-1} = \text{Domain of } f$

So, the inverse of a function $y = f(x)$ switches the roles of x and y

The input of f^{-1} is output of f ; the output of f^{-1} is input of f
Domain Range Range Domain

Graph of $y = f^{-1}(x)$ is the graph of $y = f(x)$ with x and y switched

Inverse Functions - Graphing

► We defined an inverse function in the following way:

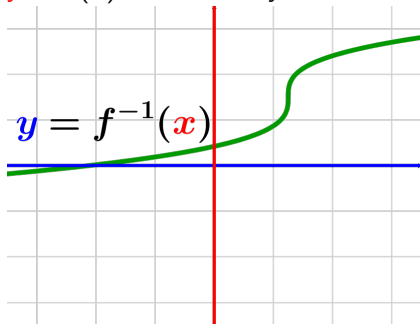
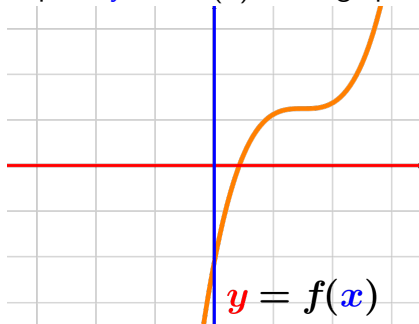
If $y = f(x)$ is a 1-1 function, then $y = f^{-1}(x)$ is the *inverse function* if:

- $x = f^{-1}(f(x))$
- Domain of $f^{-1} = \text{Range of } f$
- Range of $f^{-1} = \text{Domain of } f$

So, the inverse of a function $y = f(x)$ switches the roles of x and y

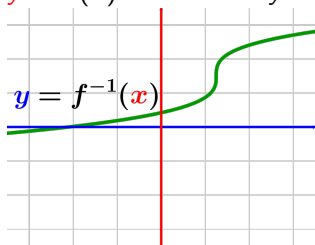
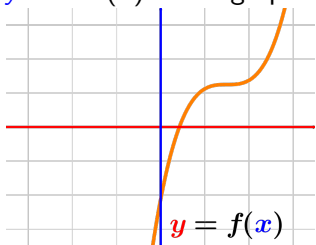
The input of f^{-1} is output of f ; the output of f^{-1} is input of f
Domain Range Range Domain

Graph of $y = f^{-1}(x)$ is the graph of $y = f(x)$ with x and y switched



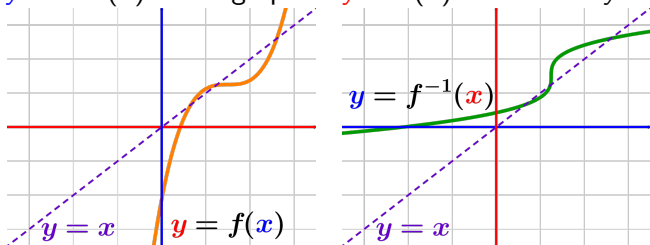
Inverse Functions - Graphing

Graph of $y = f^{-1}(x)$ is the graph of $y = f(x)$ with x and y switched

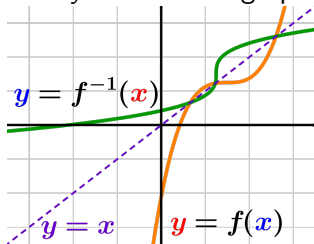


Inverse Functions - Graphing

Graph of $y = f^{-1}(x)$ is the graph of $y = f(x)$ with x and y switched

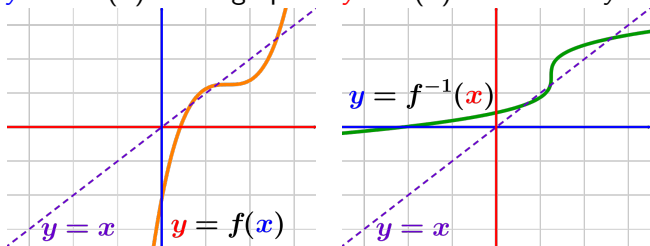


If we graph these on the same plane, we can make the observation that switching the roles of x and y reflects the graph across the line $y = x$

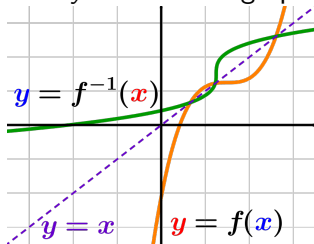


Inverse Functions - Graphing

Graph of $y = f^{-1}(x)$ is the graph of $y = f(x)$ with x and y switched



If we graph these on the same plane, we can make the observation that switching the roles of x and y reflects the graph across the line $y = x$



In General: The graph $y = f^{-1}(x)$ is the graph of $y = f(x)$ reflected across the line $y = x$