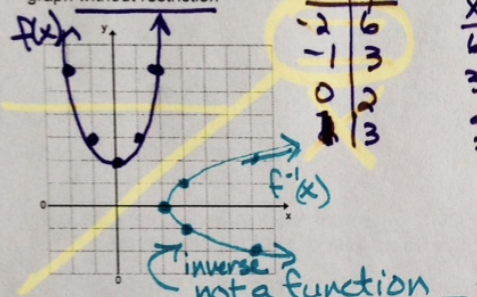
ALGEBRA II , Chapter 6 section 4, pt. 2 (inverse functions)

Restrictions: like $x < 0$ or $x \geq 0$, with even roots there are usually two answers, restrictions limit the answer to only negative or only positive.

Find the inverse of the function. Then graph both equations.

$f(x) = x^2 + 2 \quad x \leq 0$

graph without restriction

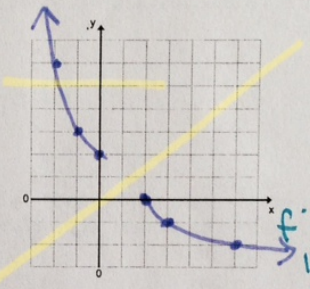


x	y
-2	6
-1	3
0	2
1	3

$f^{-1}(x)$

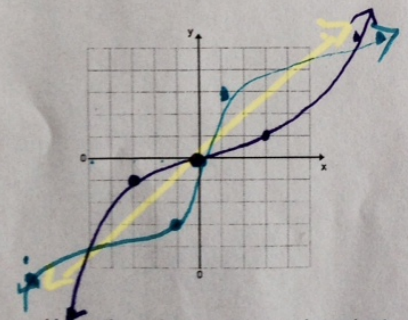
x	y
6	-2
3	-1
2	0
3	1

graph with restriction



Horizontal Line Test!!!! The inverse of a function is also a function if and only if no horizontal line intersects the graph of the original function in more than one place

$g(x) = \frac{1}{27}x^3$ ← no restriction for cubed



$g(x)$

x	g(x)
-6	-8
-3	-1
0	0
3	1
6	8

$g^{-1}(x)$

x	$g^{-1}(x)$
-8	-6
-1	-3
0	0
1	3
8	6

Using the calculator, determine whether the inverse of the function $f(x) = 3x^5 - 2$ is a function. Then find the inverse.