AA Unit 2: Inverses Notes

**I can find the INVERSE of a function algebraically.**

The first step to finding the inverse of

$h(x) = \sqrt{2x+1} + 5$ is to switch the x

and the y to form the equation

$x = \sqrt{2y+1} + 5$

Then solve this equation for y by

Reversing Operations.

$(x-5)^2 = (\sqrt{2y+1})^2$

$(x-5)^2 = 2y+1$

$-1 \quad -1$

$\frac{(x-5)^2 - 1}{2} = \frac{2y}{2}$

$\frac{(x-5)^2 - 1}{2} = y$

**I can find the INVERSE from a given table.**

The table representing the inverse $f^{-1}(x)$ can be

created by Switching the #'s

in the x & y columns.

| x | f(x) |
|---|---|
| -8 | -2 |
| -1 | -1 |
| 0 | 0 |
| 1 | 1 |
| 8 | 2 |

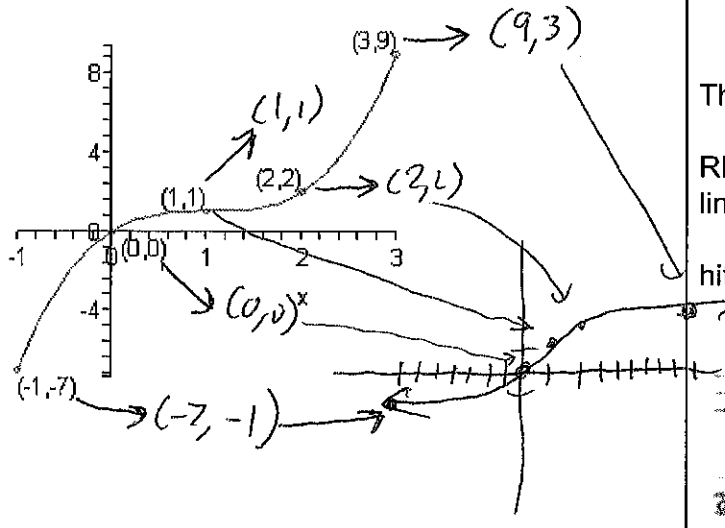
| x | $f^{-1}(x)$ |
|---|---|
| -2 | -8 |
| -1 | -1 |
| 0 | 0 |
| 1 | 1 |
| 2 | 8 |

**I can graph the INVERSE from a given graph.**

To draw the INVERSE, I locate points on the

original graph and switch the x and the y and

graph these new points.




**I can use a graph to determine whether or not a RELATION is a FUNCTION.**

The Vertical Line Test shows that a

RELATION is a function if any vertical line

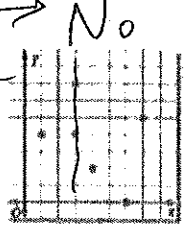
hits the graph in AT MOST one point.

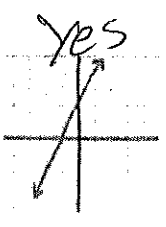
The Vertical Line Test shows that a

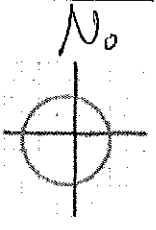
RELATION is NOT a function if any vertical

line

hits the graph in MORE THAN one point.


No


Yes


No


Yes

**I can use a table to determine whether or not a RELATION is a FUNCTION.**

If a table has repeated x values that have different.

y values then the table is not a function.

If each x value in a table has only one y value then the table is a function

No Yes Yes No

| x | y |
|---|---|
| 3 | 3 |
| 4 | 5 |
| 5 | 7 |
| 5 | 9 |
| 6 | 11 |

| x | y |
|---|---|
| 5 | 31 |
| 6 | 28 |
| 7 | 25 |
| 8 | 22 |
| 9 | 19 |

| x | y |
|---|---|
| 2 | 3 |
| 3 | 3 |
| 4 | 3 |
| 5 | 3 |
| 6 | 3 |

| x | y |
|---|---|
| 7 | 10 |
| 8 | 20 |
| 9 | 30 |
| 9 | 40 |
| 10 | 50 |

**I can use COMPOSITE FUNCTIONS to determine whether on not two functions are INVERSES.**

$f(x) = 2\sqrt{x-1}+2$ and $g(x) = (\frac{x-2}{2})^2 + 1$

The COMPOSITE FUNCTION $f(g(x))$ means you replace the x in f(x) with g(x)

$f(g(x)) = 2\sqrt{g(x)-1}+2$

$= 2\sqrt{(\frac{x-2}{2})^2+1-1}+2$

$= 2\sqrt{(\frac{x-2}{2})^2}+2$

$= 2(\frac{x-2}{2})+2$

$= x-2+2 = x$ ☺

If two functions are INVERSES then $f(g(x))$ simplifies to x. This makes sense because if two functions are INVERSES, combining the two functions should cancel each other out (like + & −).