

# Intro to Inverses Notes

Inverse: what is created when you switch the x & y values

→ notation: -if  $f(x)$  is the original,  $f^{-1}(x)$  is the inverse if it is a function.

- if the inverse is not a function leave it as  $y =$  (this is just a relation of x & y not a function)

how to find the inverse?

with tables: switch the x & y columns

ex		inverse	
x	y	x	y
-1	4	4	-1
0	6	6	0
1	8	8	1
2	10	10	2

graphically: pts go from (x,y) to (y,x)

OR visually you reflect the graph over  $y=x$  line

\*  $y=x$  is a line through (0,0) with slope of 1

algebraically: given the original equation write as  $y =$ , then switch the x & y and solve for y. In order use inverse notation you must check if it's a function (passes vertical line test)

- \* remember  $\pm$  when square rooting
- \* final answer put in radical form instead of exponential, if applies

ex  $f(x) = 2x - 4$

$y = 2x - 4$

$x = 2y - 4$

$\frac{x+4}{2} = \frac{2y}{2}$

$\frac{x+4}{2} = y$  is it a function? Yes!

$f^{-1}(x) = \frac{x+4}{2}$