

Notes 11/12

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

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

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 $f(x) = 2x - 6$

$$y = 2x - 6$$

$$x = 2y - 6$$

$$\frac{x+6}{2} = \frac{2y}{2}$$

$$\frac{x+6}{2} = y \quad \text{is it a function? Yes!}$$

$$f^{-1}(x) = \frac{x+6}{2}$$