

INVERSE

$$f(x) = 2x + 3$$

INVERSE $y = \frac{1}{2}(x-3)$?

x	0	1	2	3	4	(0,3)	(3,9)
y	3	5	7	9	11	(1,5)	(4,11)
						(2,7)	

x	3	5	7	9	11	(3,0)	(9,3)
y	0	1	2	3	4	(5,1)	(11,4)
						(7,2)	

$$f(x) = 2x + 3$$

$$y = 2x + 3$$

$$x = 2y + 3$$

$$\frac{2y}{2} = \frac{x-3}{2}$$

$$y = \frac{x-3}{2} = \frac{1}{2}(x-3)$$

Swap x with y

Solve for y

$$f^{-1}(x) = \frac{1}{2}(x-3)$$

"inverse"

$$f(x) = 3x - 1$$

$$y = 3x - 1$$

swap $x+1 = 3y$ ~~x~~

solve $\frac{3y}{3} = \frac{x+1}{3}$

$$y = \frac{x+1}{3} = \frac{1}{3}(x+1)$$

$$f^{-1}(x) = \frac{1}{3}(x+1)$$

$$f(x) = x^2 \longleftrightarrow f^{-1}(x) = \sqrt{x}$$

$$y = x^2$$

$$x = y^2$$

$$\sqrt{y^2} = \sqrt{x}$$

$$y = \pm \sqrt{x}$$

$$f(x) = 2x + 3$$

$$f^{-1}(x) = \frac{1}{2}(x - 3)$$

- 1) Swap x and y
 - 2) Solve for y
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- A) Some inverses aren't functions ($y = x^2$)
- B) The graph of a function and its inverse are always mirrored reflections across $y = x$.

- 1) p 454 5-8, 23-28
- 2) Inverse of Functions 1-8
- 3) Inverses of Linear Functions 1-19 odds