

July 7, 2015

In
 x
 Domain
 (Set of Valid x 's)
 Horizontal Values
 Run
 Independent Variable

Function Machine - f

Software
 • formula

out
 y
 Range
 Vertical Values
 Rise
 Dependent Variable

$y = f(x)$
 ↑
 Input

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Examples

<u>In</u>	$3x - 5$ (June)	<u>out</u>
-2		-11
0		-5
100		295

ordered pair
 (x, y)
 $(x, f(x))$
 (Horizontal, Vertical)
 (Independent, Dependent)
 $(-2, -11)$
 $(0, -5)$
 $(100, 295)$

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$f(x) = 3x - 5 = f(x)$
 ↑
 Input
 Software

Domain: $(-\infty, \infty)$

Set-Builder notation
 $\{x \mid x \in \mathbb{R}\}$
 ↑ Such That
 element of

Interval Notation
 Set of Real Numbers

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

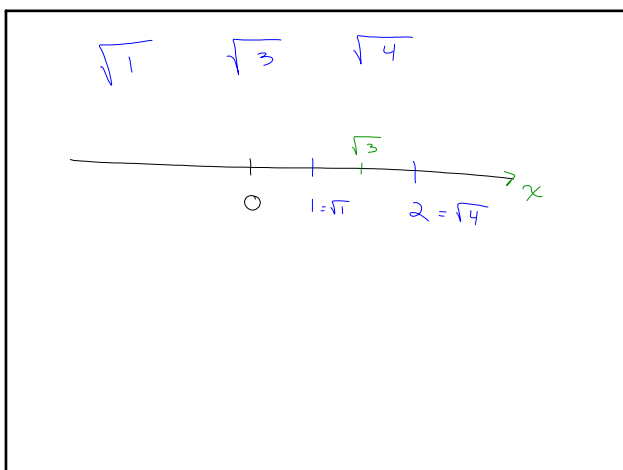
$f(4) = \sqrt{4} + 2 = 2 + 2 = 4 = (4, 4)$

$f(9) = \sqrt{9} + 2 = 3 + 2 = 5 = (9, 5)$

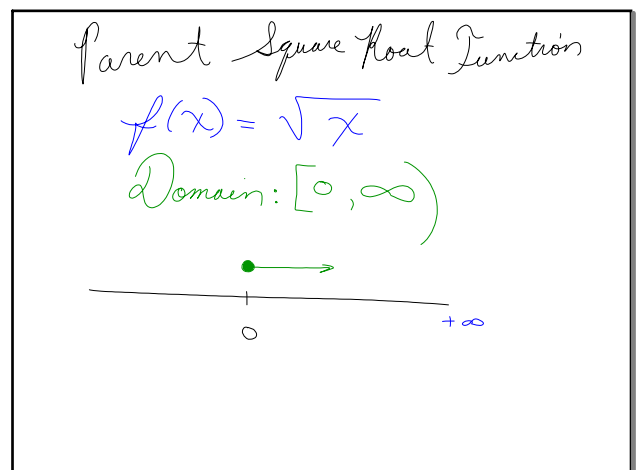
$f(1) = \sqrt{1} + 2 = 1 + 2 = 3 = (1, 3)$

$f(3) = \sqrt{3} + 2 = (3, \sqrt{3} + 2)$

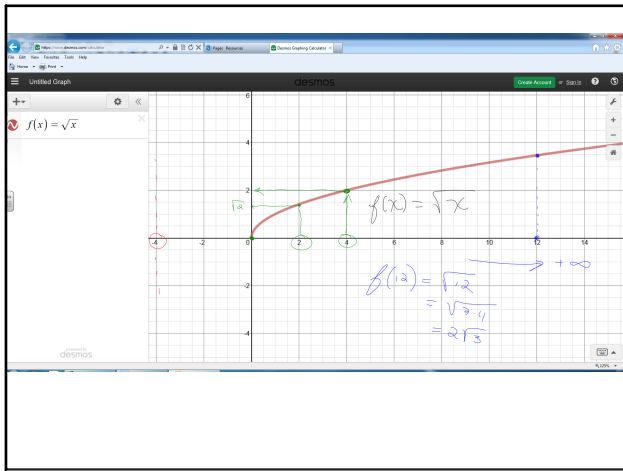
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① $f(x) = \sqrt{x} + k$

- ① If $k > 0$, $f(x)$ moves up
- ② If $k < 0$, $f(x)$ moves down

② $f(x) = \sqrt{x-h}$

↑ Horizontal shift

- ① If $h > 0$, $f(x)$ shifts to the right.
- ② If $h < 0$, $f(x)$ shifts to the left.

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

x	$g(x)$
6	2
11	3
18	4
2	0
3	1

Domain: $[2, \infty)$

Alternate way the find Domain

$f(x) = \sqrt{x}$

$x \geq 0$

Domain: $[0, \infty)$

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

$x-2 \geq 0$

$+2$

$x \geq 2$

D: $[2, \infty)$

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

x	$h(x)$
-3	0
-2	1
-1	2

$= \sqrt{x - (-2)}$

$= \sqrt{x+2}$

Domain: $x+2 \geq 0$

$x \geq -2$

Domain: $[-2, \infty)$

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