

Families of Functions

Parent Functions -

Simply an original

Function.

Child Function - A Function

that has changed in
some way from the parent
but still has basic
similarities.

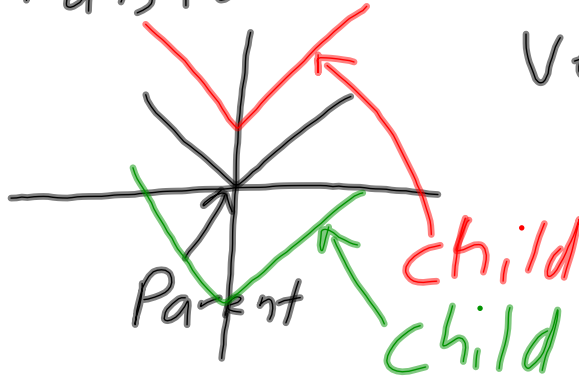
$$y = x \leftarrow \text{Parent}$$

$$\left. \begin{array}{l} y = 2x \\ y = 2x + 2 \end{array} \right\} \text{child}$$

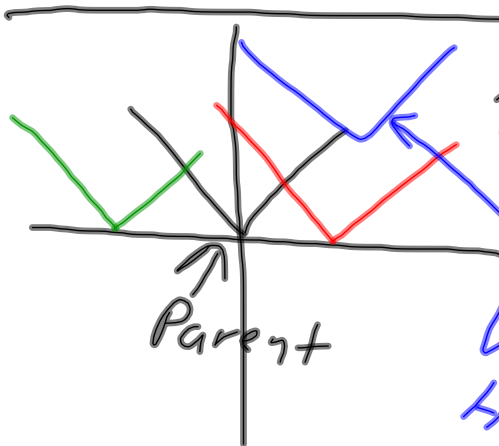
$$y = |x| \leftarrow \text{parent}$$

$$y = |x + 2| \leftarrow \text{child}$$

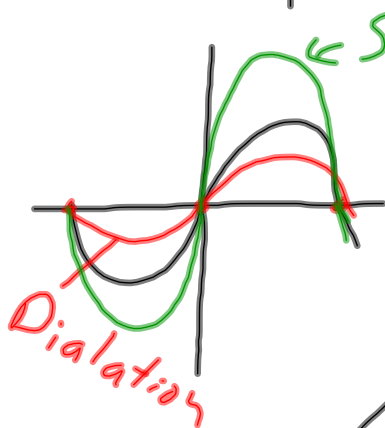
Transformation



Vertical Translation
 ↑ ↓
 Move Up and down

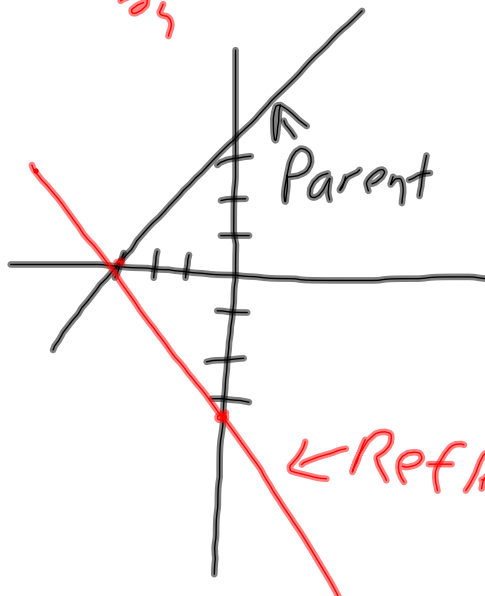


Horizontal Translation
 |
 Ball Moves Left or Right



← Stretch
 Vertical
 Horizontal

Dilation/Stretch
 Smaller bigger
 In the vertical Direction



Reflection
 Reflected over X

$$f(x) = |x| \leftarrow \text{Parent}$$

$$f(x) = |x| + 2 \quad \uparrow 2$$

$$f(x) = |x| - 2 \quad \downarrow 2$$

$$f(x) = |x|$$

$$f(x) = |x + 2| \quad \text{Moves Left 2}$$

$$f(x) = |x - 2| \quad \text{Moves Right 2}$$

$$f(x) = |x|$$

$$f(x) = -|x| \quad \text{Reflection over } x$$

$$f(x) = |x| + 4 \quad \text{Parent}$$

$$f(x) = -|x| + 4 \quad \text{Reflected at } x = 4$$