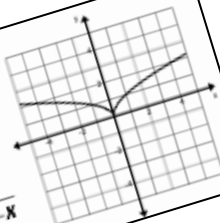


Function Transformation Foldable

Reflection over the y-axis
 $f(-x)$

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

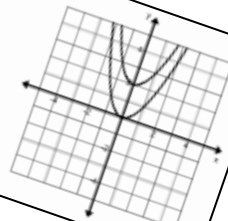
Graph: $g(x) = f(-x) = \sqrt{-x}$



Vertical Translation Up
 $f(x) + k$

Parent: $f(x) = x^2$

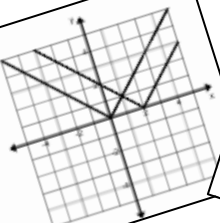
Graph: $g(x) = x^2 + 2$



Horizontal Translation Right
 $f(x - h)$

Parent: $f(x) = |x|$

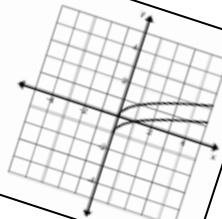
Graph: $g(x) = |x - 2|$



Vertical Translation Down
 $f(x) - k$

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

Graph: $g(x) = \sqrt{x} - 1$

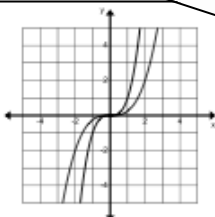


Vertical Shrink

$a \cdot f(x)$ when $0 < a < 1$

Parent: $f(x) = x^3$

Graph: $g(x) = \frac{1}{4}x^3$



Thank you for buying my foldable!

Please stop back to my store and let me know how the foldable went.

<http://www.teacherspayteachers.com/Store/Foresta-Math>

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Email: forestamath@aol.com

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Polka Dot Frame Shades by Mercedes Hutchens

<http://www.teacherspayteachers.com/Store/Mercedes-Hutchens>

Instructions

Print or copy page 3 and 4 on both sides if you want a foldable with different parent function transformations.

Print or copy page 3 and 6,7,8,9,or 10 if you want one parent function.

Place the paper so the flaps are face up.

Cut along the dotted lines to create flaps.

Fold the flaps inwards.

Glue the foldable into notes or on a piece of construction paper.

Go through the foldable with your students.

An answer sheet is included for page 4 only and is on page 5.

Pages 6 – 9 have one parent function for you to use with your students.

Page 10 is a blank page for any parent function.

Function Transformations

Vertical Translation Down

Vertical Translation Up

Horizontal Translation Left

Horizontal Translation Right

Reflection over the Y-axis

Reflection over the X-axis

Vertical Shrink

Vertical Stretch

Horizontal Shrink

Horizontal Stretch

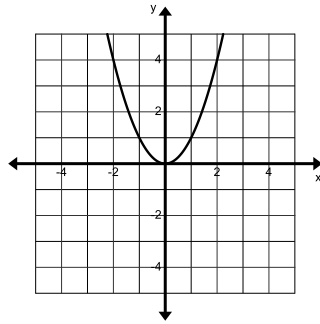
Function Transformations

Vertical Shift Up

$$f(x) + k$$

Parent: $f(x) = x^2$

Graph: $g(x) = x^2 + 2$

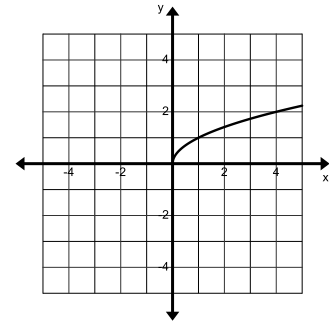


Vertical Shift Down

$$f(x) - k$$

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

Graph: $g(x) = \sqrt{x} - 1$

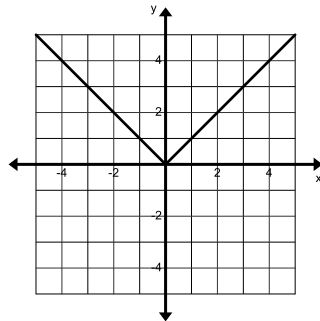


Horizontal Shift Right

$$f(x - h)$$

Parent: $f(x) = |x|$

Graph: $g(x) = |x - 2|$

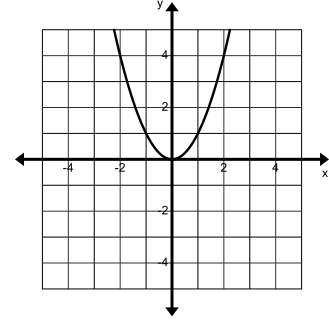


Horizontal Shift Left

$$f(x + h)$$

Parent: $f(x) = x^2$

Graph: $g(x) = (x + 2)^2$

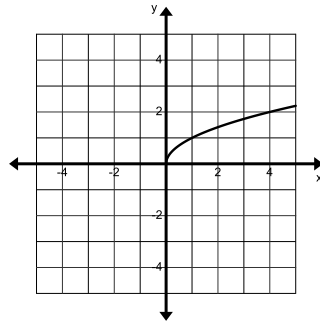


Reflection over the x-axis

$$-f(x)$$

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

Graph: $g(x) = -\sqrt{x}$

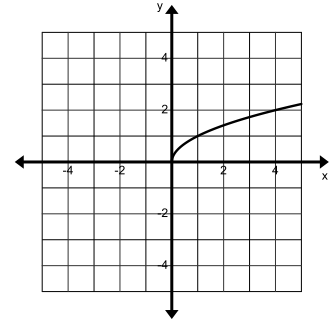


Reflection over the y-axis

$$f(-x)$$

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

Graph: $g(x) = f(-x) = \sqrt{-x}$

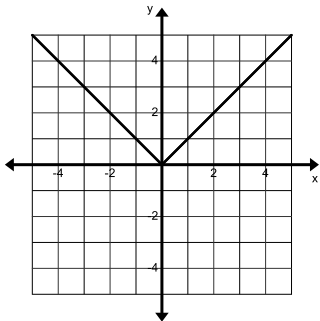


Vertical Stretch

$$a \cdot f(x) \text{ when } a > 1$$

Parent: $f(x) = |x|$

Graph: $g(x) = 2|x|$

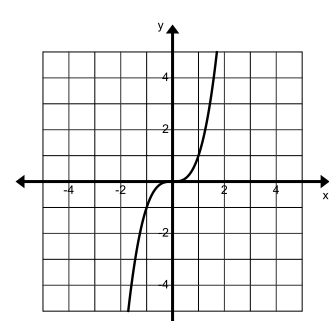


Vertical Shrink

$$a \cdot f(x) \text{ when } 0 < a < 1$$

Parent: $f(x) = x^3$

Graph: $g(x) = \frac{1}{4}x^3$

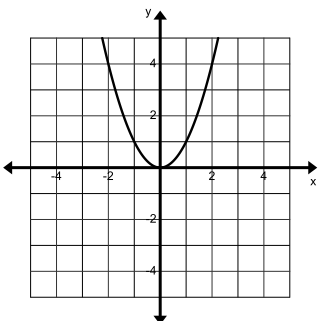


Horizontal Stretch

$$f(ax) \text{ when } 0 < a < 1$$

Parent: $f(x) = x^2$

Graph: $g(x) = f\left(\frac{1}{2}x\right) = \frac{1}{4}x^2$

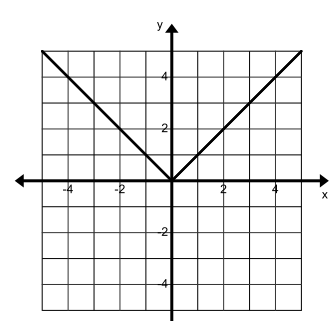


Horizontal Shrink

$$f(ax) \text{ when } a > 1$$

Parent: $f(x) = |x|$

Graph: $g(x) = f(4x) = |4x|$



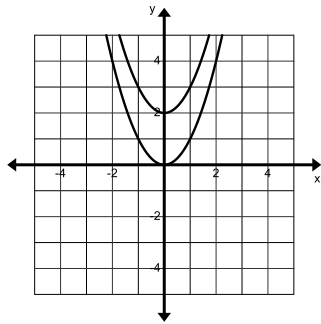
Function Transformations

Vertical Translation Up

$$f(x) + k$$

Parent: $f(x) = x^2$

Graph: $g(x) = x^2 + 2$

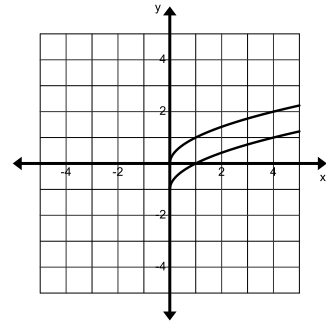


Vertical Translation Down

$$f(x) - k$$

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

Graph: $g(x) = \sqrt{x} - 1$

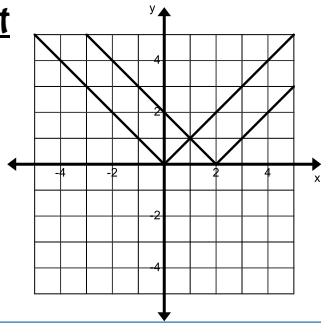


Horizontal Translation Right

$$f(x - h)$$

Parent: $f(x) = |x|$

Graph: $g(x) = |x - 2|$

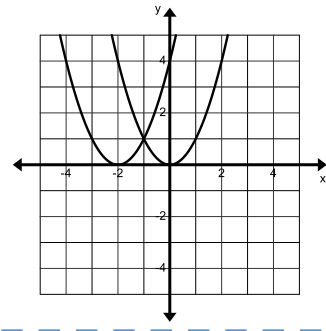


Horizontal Translation Left

$$f(x + h)$$

Parent: $f(x) = x^2$

Graph: $g(x) = (x + 2)^2$

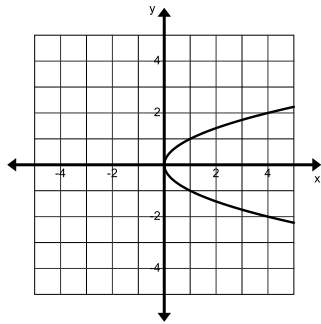


Reflection over the x-axis:

$$-f(x)$$

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

Graph: $g(x) = -\sqrt{x}$

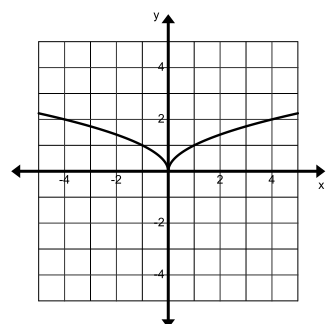


Reflection over the y-axis

$$f(-x)$$

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

Graph: $g(x) = f(-x) = \sqrt{-x}$

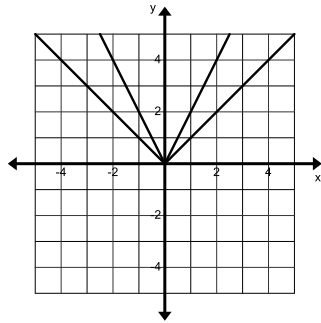


Vertical Stretch

$$a \cdot f(x) \text{ when } a > 1$$

Parent: $f(x) = |x|$

Graph: $g(x) = 2|x|$

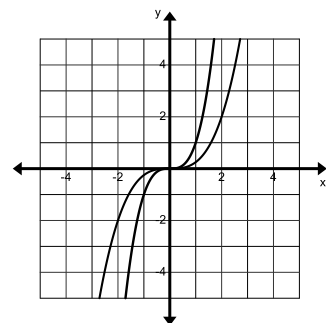


Vertical Shrink

$$a \cdot f(x) \text{ when } 0 < a < 1$$

Parent: $f(x) = x^3$

Graph: $g(x) = \frac{1}{4}x^3$

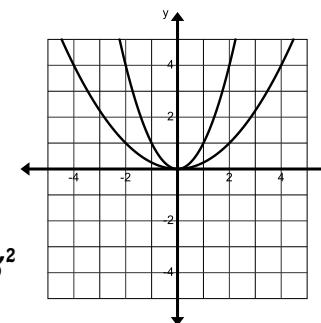


Horizontal Stretch

$$f(ax) \text{ when } 0 < a < 1$$

Parent: $f(x) = x^2$

Graph: $g(x) = f\left(\frac{1}{2}x\right) = \frac{1}{4}x^2$

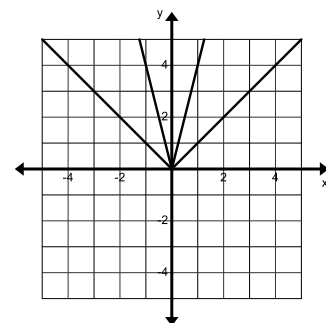


Horizontal Shrink

$$f(ax) \text{ when } a > 1$$

Parent: $f(x) = |x|$

Graph: $g(x) = f(4x) = |4x|$



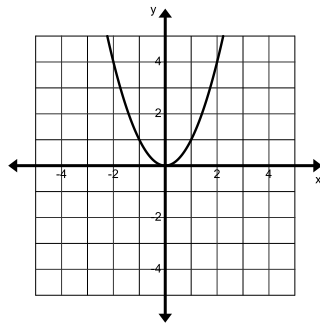
Function Transformations

Vertical Translation Up

$$f(x) + k$$

Parent: $f(x) = x^2$

Graph:

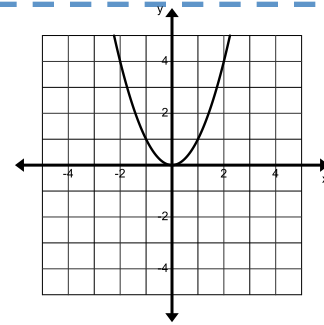


Vertical Translation Down

$$f(x) - k$$

Parent: $f(x) = x^2$

Graph:

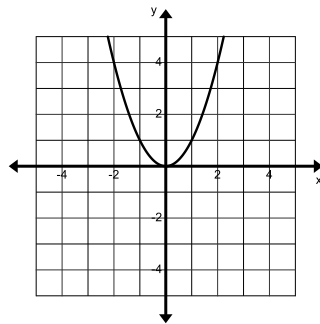


Horizontal Translation Right

$$f(x - h)$$

Parent: $f(x) = x^2$

Graph:

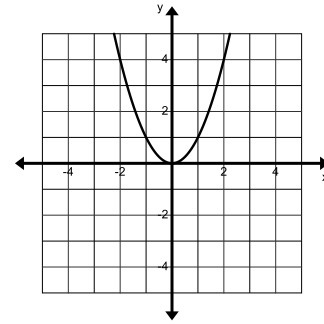


Horizontal Translation Left

$$f(x + h)$$

Parent: $f(x) = x^2$

Graph:

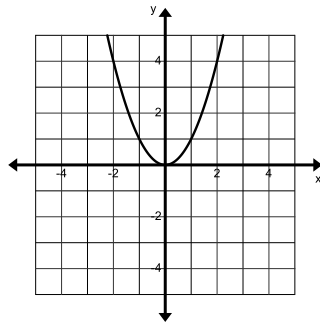


Reflection over the x-axis:

$$-f(x)$$

Parent: $f(x) = x^2$

Graph:

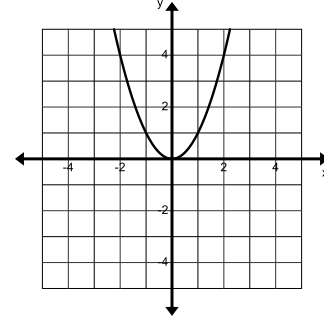


Reflection over the y-axis

$$f(-x)$$

Parent: $f(x) = x^2$

Graph:

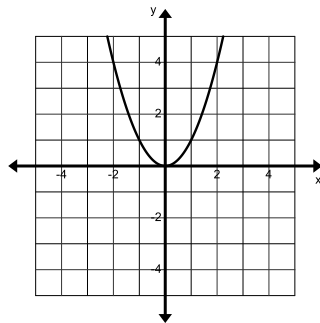


Vertical Stretch

$$a \cdot f(x) \text{ when } a > 1$$

Parent: $f(x) = x^2$

Graph:

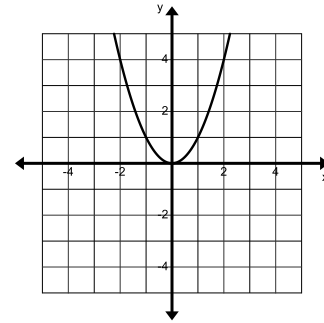


Vertical Shrink

$$a \cdot f(x) \text{ when } 0 < a < 1$$

Parent: $f(x) = x^2$

Graph:

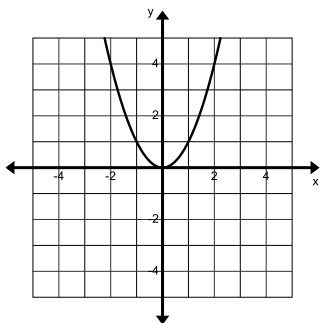


Horizontal Stretch

$$f(ax) \text{ when } 0 < a < 1$$

Parent: $f(x) = x^2$

Graph:

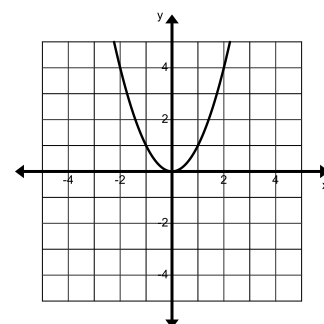


Horizontal Shrink

$$f(ax) \text{ when } a > 1$$

Parent: $f(x) = x^2$

Graph:



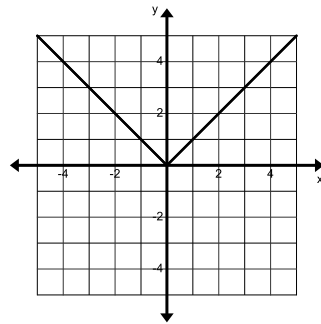
Function Transformations

Vertical Translation Up

$$f(x) + k$$

Parent: $f(x) = |x|$

Graph:

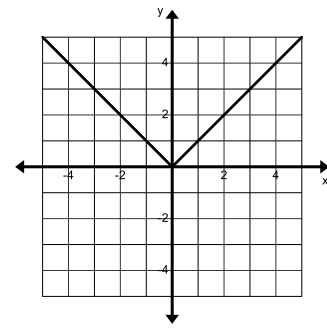


Vertical Translation Down

$$f(x) - k$$

Parent: $f(x) = |x|$

Graph:

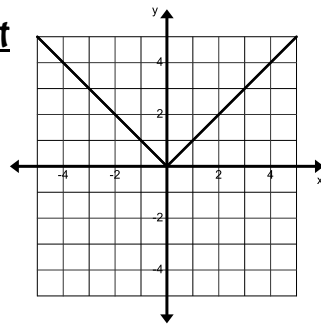


Horizontal Translation Right

$$f(x - h)$$

Parent: $f(x) = |x|$

Graph:

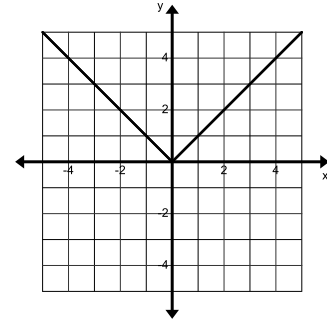


Horizontal Translation Left

$$f(x + h)$$

Parent: $f(x) = |x|$

Graph:

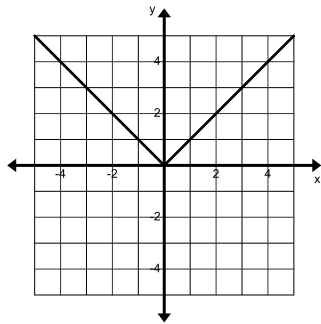


Reflection over the x-axis:

$$-f(x)$$

Parent: $f(x) = |x|$

Graph:

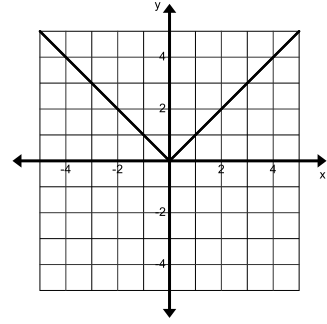


Reflection over the y-axis:

$$f(-x)$$

Parent: $f(x) = |x|$

Graph:

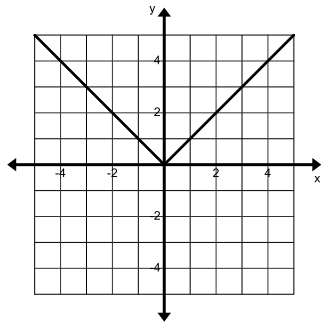


Vertical Stretch

$$a \cdot f(x) \text{ when } a > 1$$

Parent: $f(x) = |x|$

Graph:

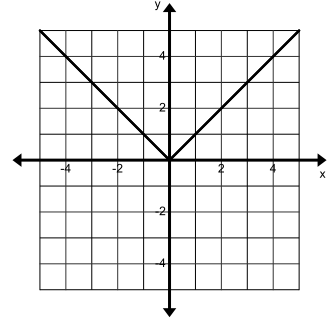


Vertical Shrink:

$$a \cdot f(x) \text{ when } 0 < a < 1$$

Parent: $f(x) = |x|$

Graph:

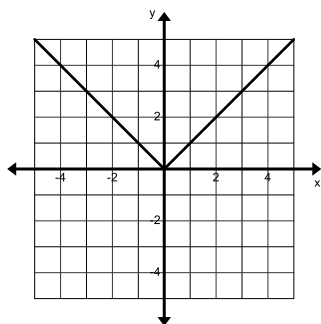


Horizontal Stretch

$$f(ax) \text{ when } 0 < a < 1$$

Parent: $f(x) = |x|$

Graph:

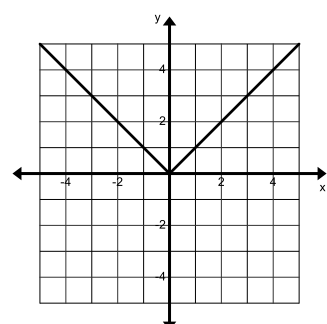


Horizontal Shrink

$$f(ax) \text{ when } a > 1$$

Parent: $f(x) = |x|$

Graph:



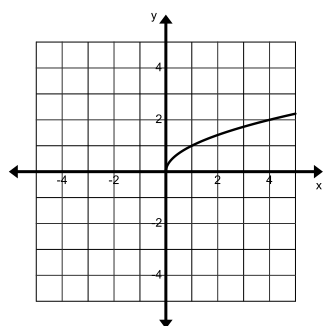
Function Transformations

Vertical Translation Up

$$f(x) + k$$

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

Graph:

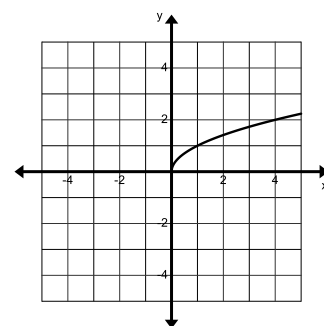


Vertical Translation Down

$$f(x) - k$$

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

Graph:

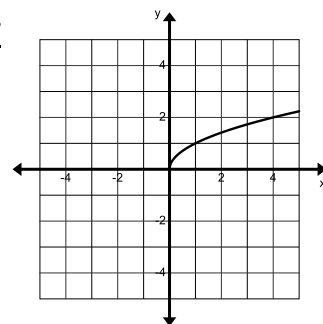


Horizontal Translation Right

$$f(x - h)$$

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

Graph:

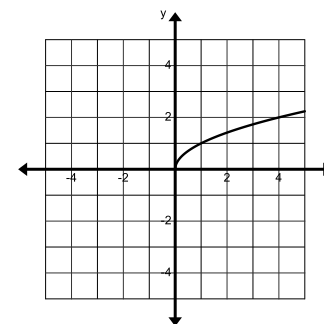


Horizontal Translation Left

$$f(x + h)$$

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

Graph:

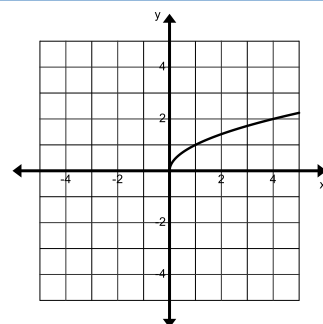


Reflection over the x-axis:

$$-f(x)$$

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

Graph:

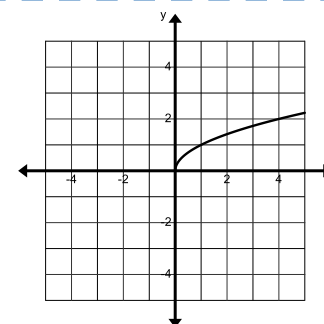


Reflection over the y-axis

$$f(-x)$$

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

Graph:

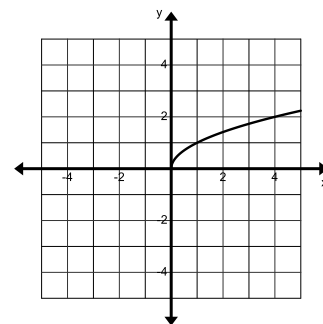


Vertical Stretch

$$a \cdot f(x) \text{ when } a > 1$$

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

Graph:

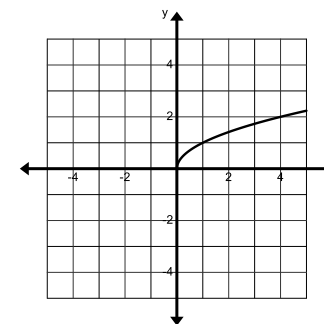


Vertical Shrink

$$a \cdot f(x) \text{ when } 0 < a < 1$$

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

Graph:

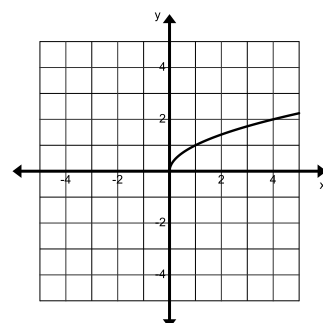


Horizontal Stretch

$$f(ax) \text{ when } 0 < a < 1$$

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

Graph:

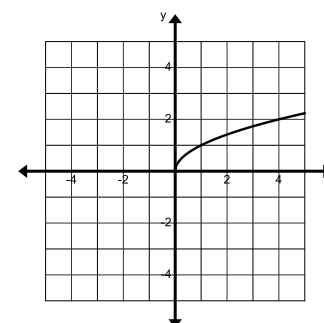


Horizontal Shrink

$$f(ax) \text{ when } a > 1$$

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

Graph:



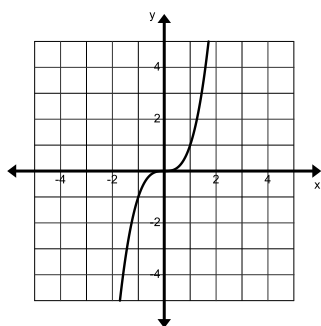
Function Transformations

Vertical Translation Up

$$f(x) + k$$

Parent: $f(x) = x^3$

Graph:

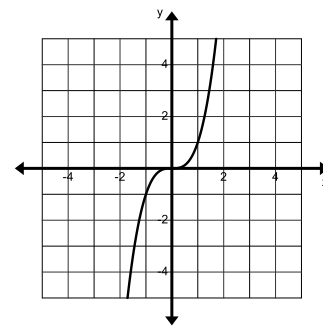


Vertical Translation Down

$$f(x) - k$$

Parent: $f(x) = x^3$

Graph:

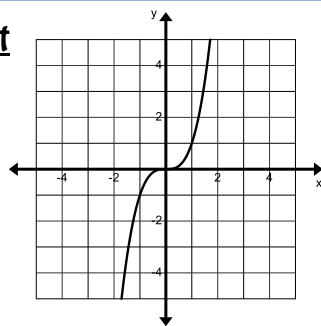


Horizontal Translation Right

$$f(x - h)$$

Parent: $f(x) = x^3$

Graph:

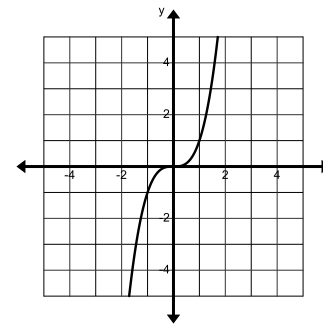


Horizontal Translation Left

$$f(x + h)$$

Parent: $f(x) = x^3$

Graph:

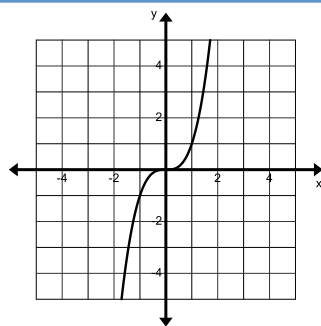


Reflection over the x-axis:

$$-f(x)$$

Parent: $f(x) = x^3$

Graph:

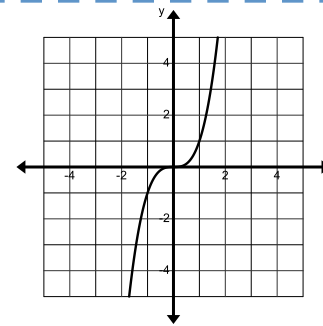


Reflection over the y-axis

$$f(-x)$$

Parent: $f(x) = x^3$

Graph:

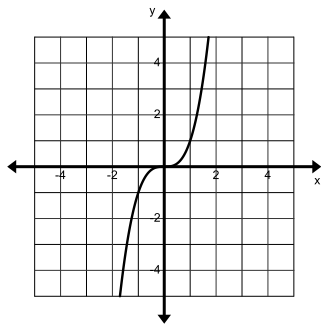


Vertical Stretch

$$a \cdot f(x) \text{ when } a > 1$$

Parent: $f(x) = x^3$

Graph:

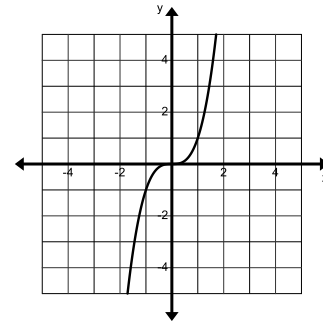


Vertical Shrink

$$a \cdot f(x) \text{ when } 0 < a < 1$$

Parent: $f(x) = x^3$

Graph:

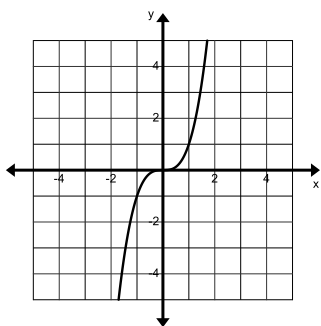


Horizontal Stretch

$$f(ax) \text{ when } 0 < a < 1$$

Parent: $f(x) = x^3$

Graph:

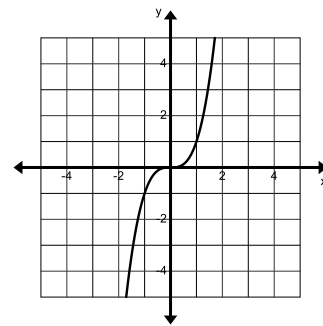


Horizontal Shrink

$$f(ax) \text{ when } a > 1$$

Parent: $f(x) = x^3$

Graph:



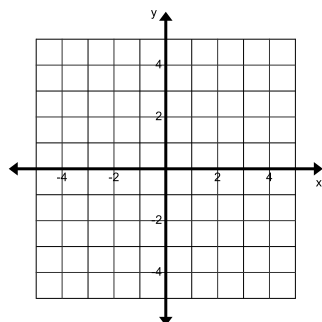
Function Transformations

Vertical Translation Up

$$f(x) + k$$

Parent:

Graph:

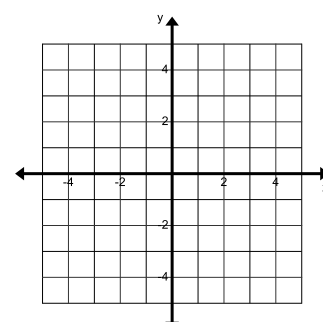


Vertical Translation Down

$$f(x) - k$$

Parent:

Graph:

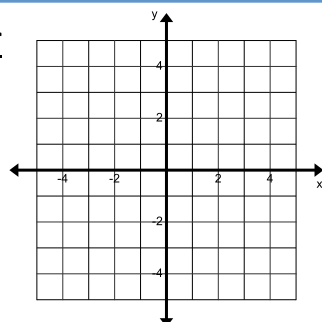


Horizontal Translation Right

$$f(x - h)$$

Parent:

Graph:

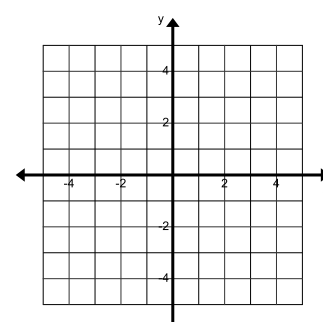


Horizontal Translation Left

$$f(x + h)$$

Parent:

Graph:

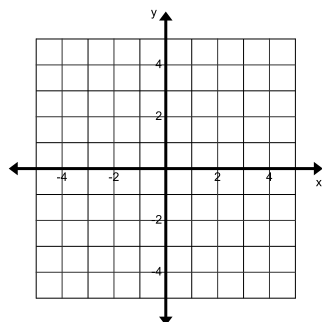


Reflection over the x-axis:

$$-f(x)$$

Parent:

Graph:

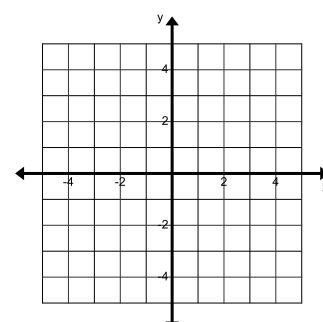


Reflection over the y-axis

$$f(-x)$$

Parent:

Graph:

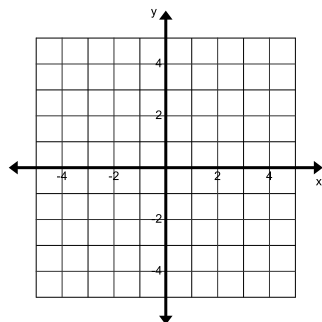


Vertical Stretch

$$a \cdot f(x) \text{ when } a > 1$$

Parent:

Graph:

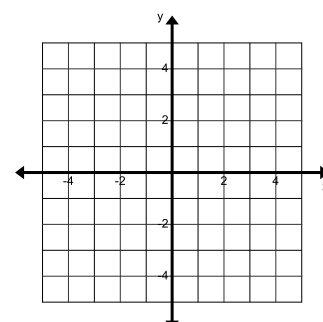


Vertical Shrink

$$a \cdot f(x) \text{ when } 0 < a < 1$$

Parent:

Graph:

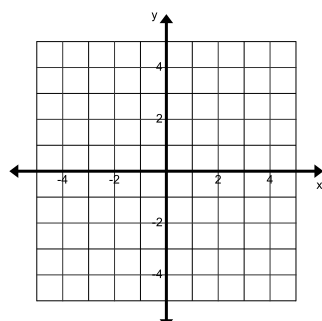


Horizontal Stretch

$$f(ax) \text{ when } 0 < a < 1$$

Parent:

Graph:



Horizontal Shrink

$$f(ax) \text{ when } a > 1$$

Parent:

Graph:

