

Graphs can change in the following ways:

1) Rigid Transformations

The _____ of the parent graph
_____. The entire graph is just
_____.

Two types:

a) Translations (Shifts)

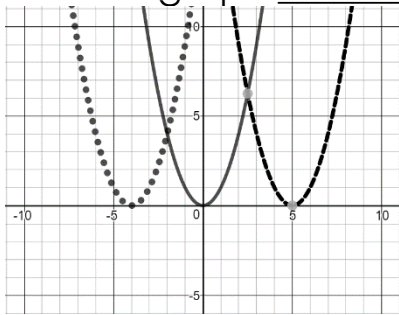
Just _____ the graph.

change in x
-> results in the
opposite of what
you expect

Change in x's – _____ translation
(shifts the entire graph h units to the _____
_____)

$f(x - h)$ shifts the entire graph _____

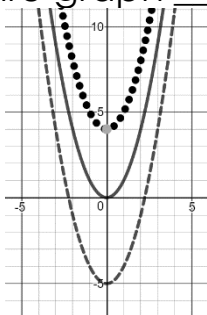
$f(x + h)$ shifts the entire graph _____



Change in y's – _____ translation
(shifts the entire graph k units _____)

$f(x) + k$ shifts the entire graph _____

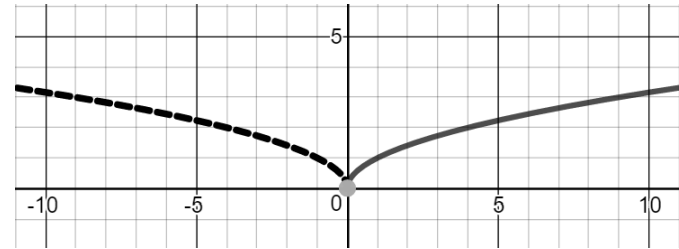
$f(x) - k$ shifts the entire graph _____



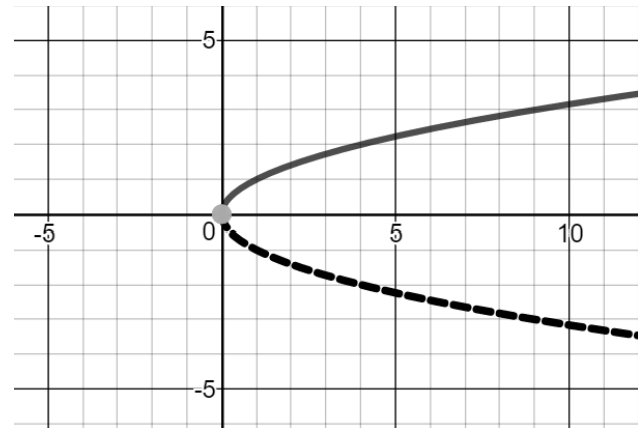
b) Reflections

The _____ of the graph over the _____
_____.

Change in x's – reflected across the _____



Change in y's – reflected across the _____



2) Non-Rigid Transformations (Dilations)

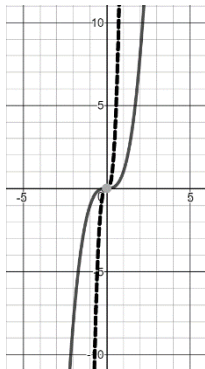
Causes a _____ of the parent graph.

Stretch – _____ the graph _____

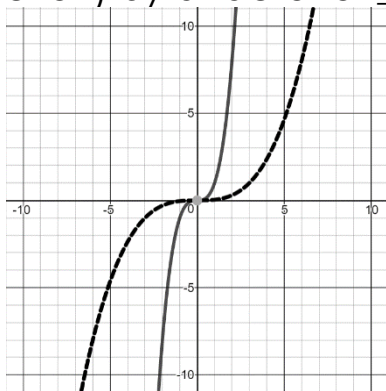
Compression (Shrink) – _____ the graph _____

Change in x's – _____

If $b > 1$: _____ the graph _____ (in the ___-direction) by a factor of ____.

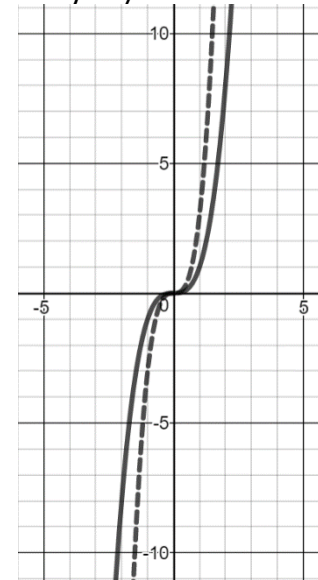


If $0 < b < 1$: _____ the graph _____ (in the ___-direction) by a factor of ____.

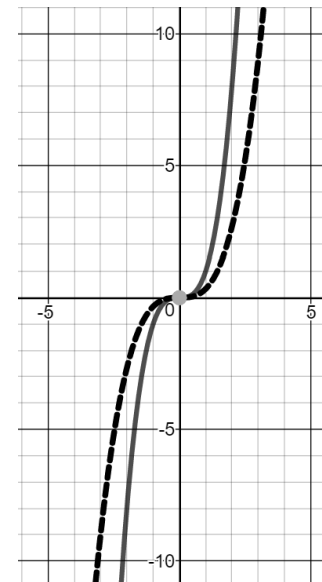


Change in y's – _____

If $a > 1$: _____ the graph _____ (in the ___-direction) by a factor of ____.



If $0 < a < 1$: _____ the graph _____ (in the ___-direction) by a factor of ____.



Identify the parent function and determine how the new graph is different from the parent function.

$$f(x) = x^2 - 4$$

Parent function: _____

$$f(x) = -2|x|$$

Parent function: _____

$$f(x) = \frac{1}{3}\sqrt[3]{x} - 2$$

Parent function: _____

$$f(x) = 2(x - 3)^2 + 1$$

Parent function: _____

$$f(x) = -\left|\frac{1}{4}(x + 2)\right| - 5$$

Parent function: _____

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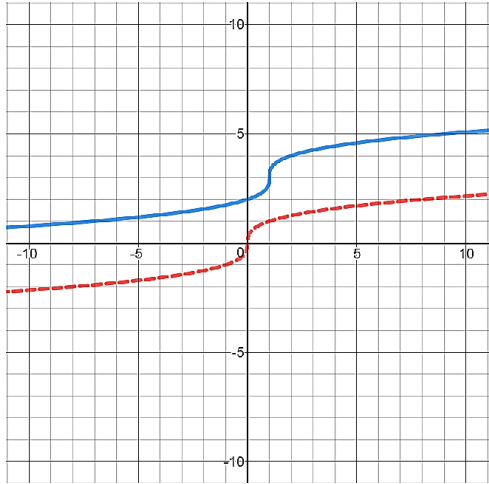
$$f(x) = 2(x - 3)^2 + 1$$

Parent function: _____

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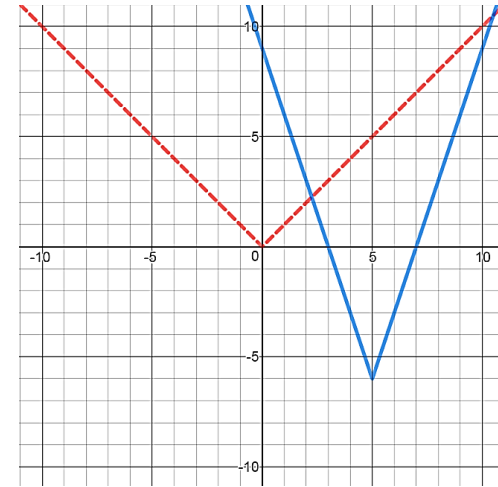
Parent function: _____

Identify the parent function and determine how the new graph is different from the parent function.

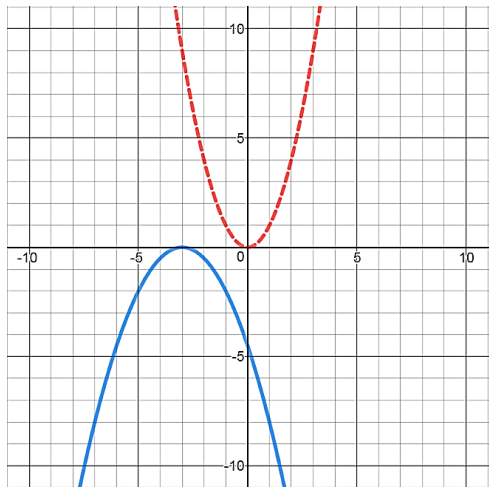


Parent function: _____

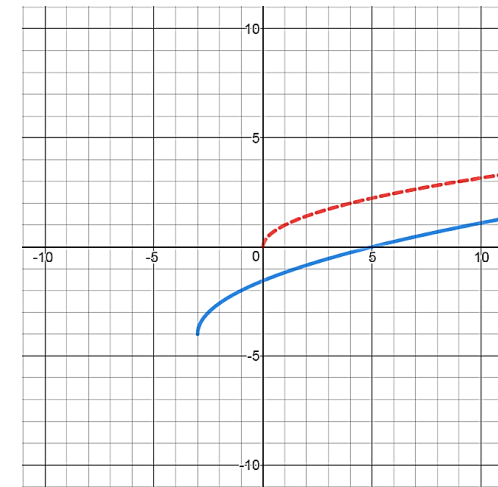
Identify the parent function and determine how the new graph is different from the parent function.



Parent function: _____



Parent function: _____



Parent function: _____