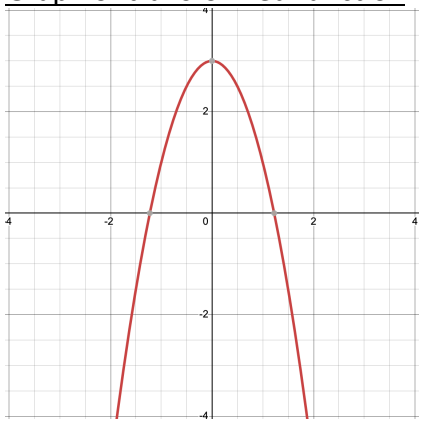
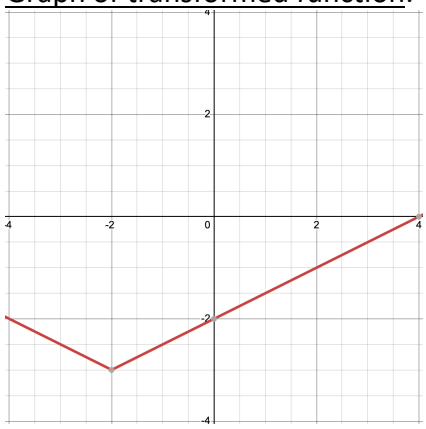
Transformations Worksheet Key

For each exercise, a parent function is given along with a set of transformations. Write a formula for the transformed function. Use transformations to sketch a graph of the transformed function.

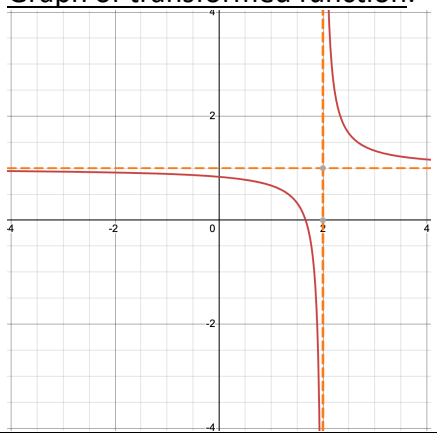
Example:

Parent function:	Transformed function:	Graph of transformed function:
$f(x) = x^2$ Transformations: • reflect over the x-axis • vertical stretch by a factor of 2 • shift up 3 units	$g(x) = -2x^2 + 3$	

1.

Parent function:	Transformed function:	Graph of transformed function:
$f(x) = \lvert x \rvert$ Transformations: • horizontal stretch by 2 • shift left 2 units • shift down 3 units	$g(x) = \left\lvert \frac{1}{2}(x+2) \right\rvert - 3$	

2.

Parent function:	Transformed function:	Graph of transformed function:
$f(x) = \frac{1}{x}$ Transformations: • vertical compression by 3 • shift right 2 units • shift up 1 units	$g(x) = \frac{1}{3(x-2)} + 1$	

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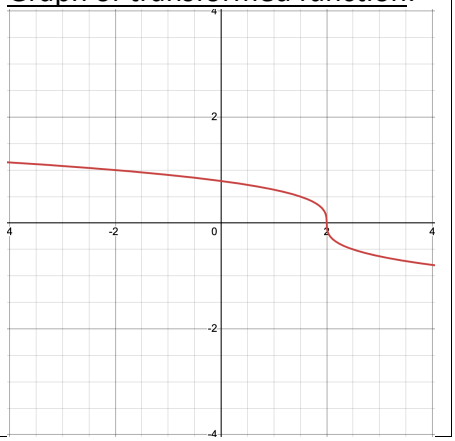
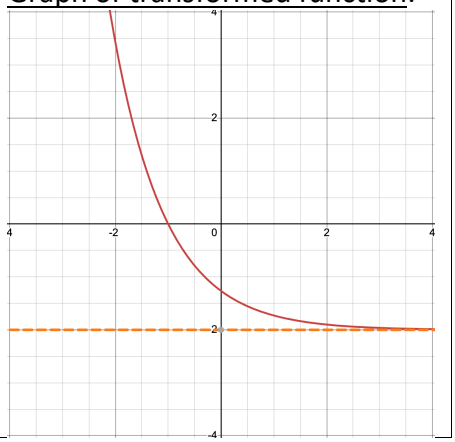
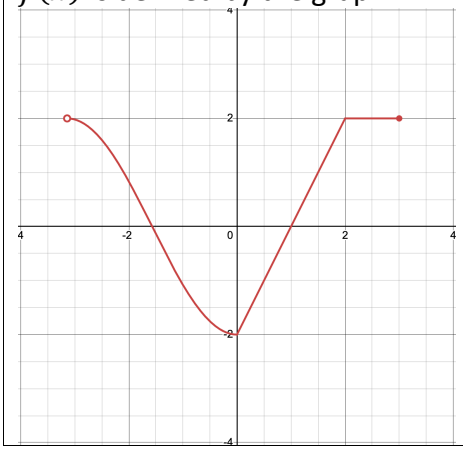
3.

Parent function:	Transformed function:	Graph of transformed function:
$f(x) = \sqrt[3]{x}$ Transformations: • horizontal stretch by 4 • reflect over x-axis • shift right 2 units	$g(x) = -\sqrt[3]{.25(x-2)}$	

4.

Parent function:	Transformed function:	Graph of transformed function:
$f(x) = e^x$ Transformations: • reflect over y-axis • shift down 2 units • shift right 1 unit • vertical stretch by a factor of 2	$g(x) = 2e^{-(x+1)} - 2$	

5.

Parent function:	Transformations:	Graph of transformed function:
$f(x)$ is defined by the graph: 	• reflect over y-axis • vertical compression by a factor of 2 • shift down 1 unit Transformed function: $y = \frac{1}{2}f(-x) - 1$