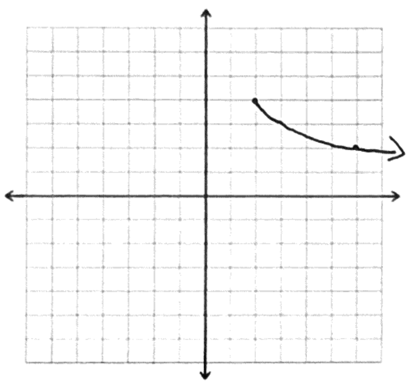
Name Answer Key Date

HW: Graphing Radicals Homework (Lesson 1)

Use tables to graph the transformations of the quadratic parent function. Identify the vertex and the domain and range of each transformed function.

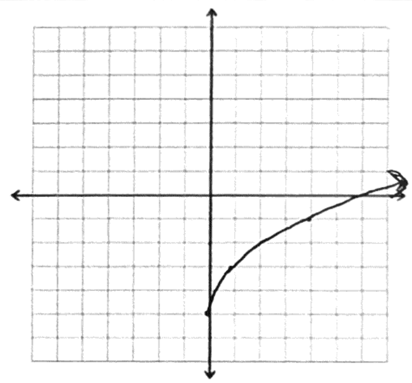
a. $f(x) = -\sqrt{x-2} + 4$

	x	y	
	0		
	1		
	4		
	9		
	16		



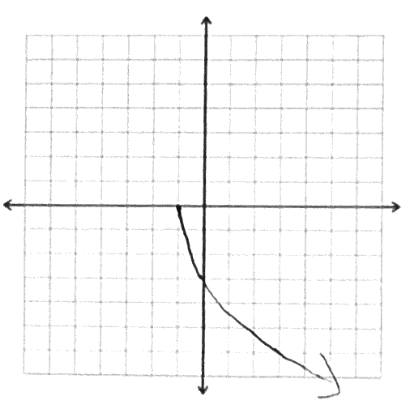
b. $g(x) = 2\sqrt{x} - 5$

	x	y	
	0		
	1		
	4		
	9		
	16		



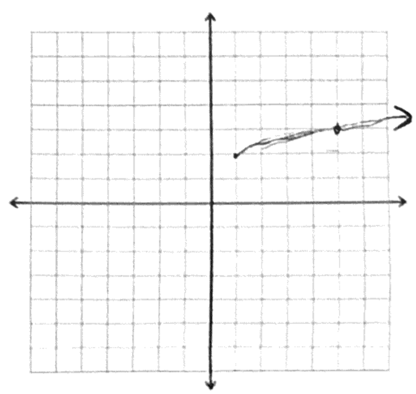
c. $f(x) = -3\sqrt[3]{x+1}$

	x	y	
	-8		
	-1		
	0		
	1		
	8		



d. $h(x) = \frac{1}{2}\sqrt[3]{x-1} + 2$

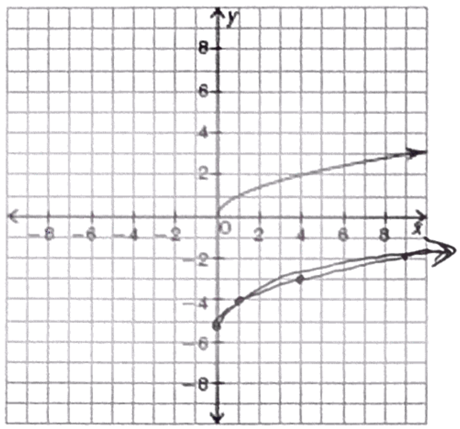
	x	y	
	-8		
	-1		
	0		
	1		
	8		



Problem Set

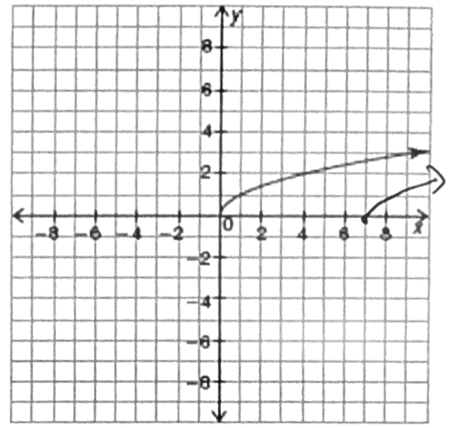
Sketch the graph of the transformation of $f(x) = \sqrt{x}$ as described in each exercise. Write the equation to describe each new function. The graph of $f(x) = \sqrt{x}$ is shown on each grid.

5. Translate the graph down 5 units.



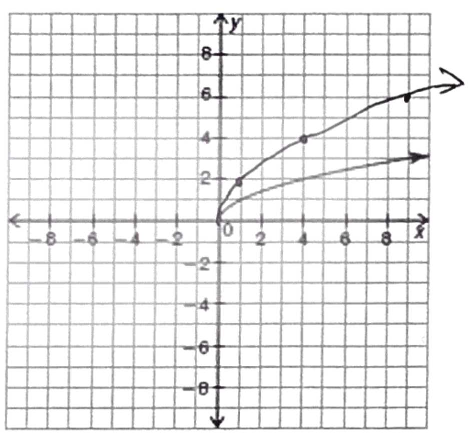
$\sqrt{x} - 5$

6. Translate the graph to the right 7 units.



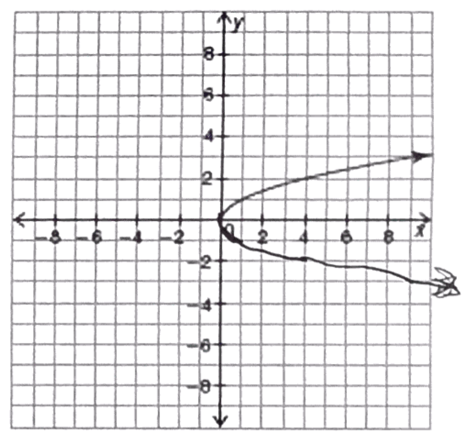
$\sqrt{x-7}$

7. Stretch the graph vertically by a factor of 2.



$2\sqrt{x}$

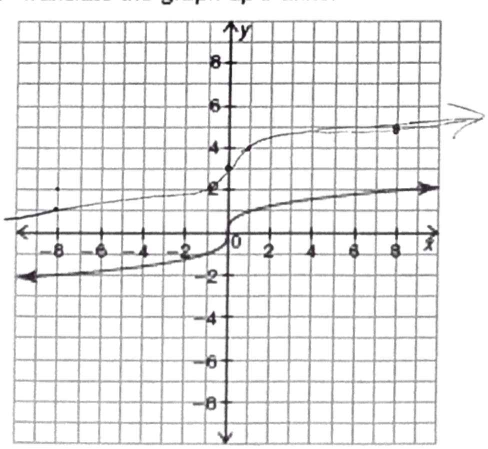
8. Reflect the graph over the x-axis.



$-\sqrt{x}$

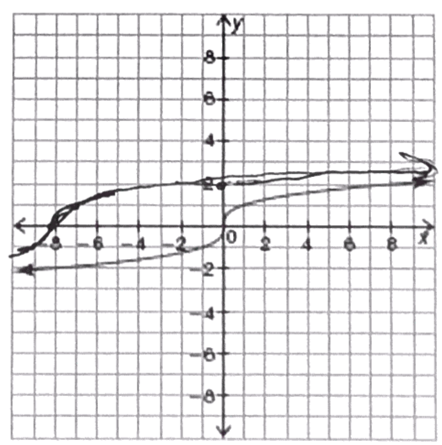
Sketch the graph of the transformation of $f(x) = \sqrt[3]{x}$ as described in each exercise. Write the equation to describe each new function. The graph of $f(x) = \sqrt[3]{x}$ is shown on each grid.

9. Translate the graph up 3 units.



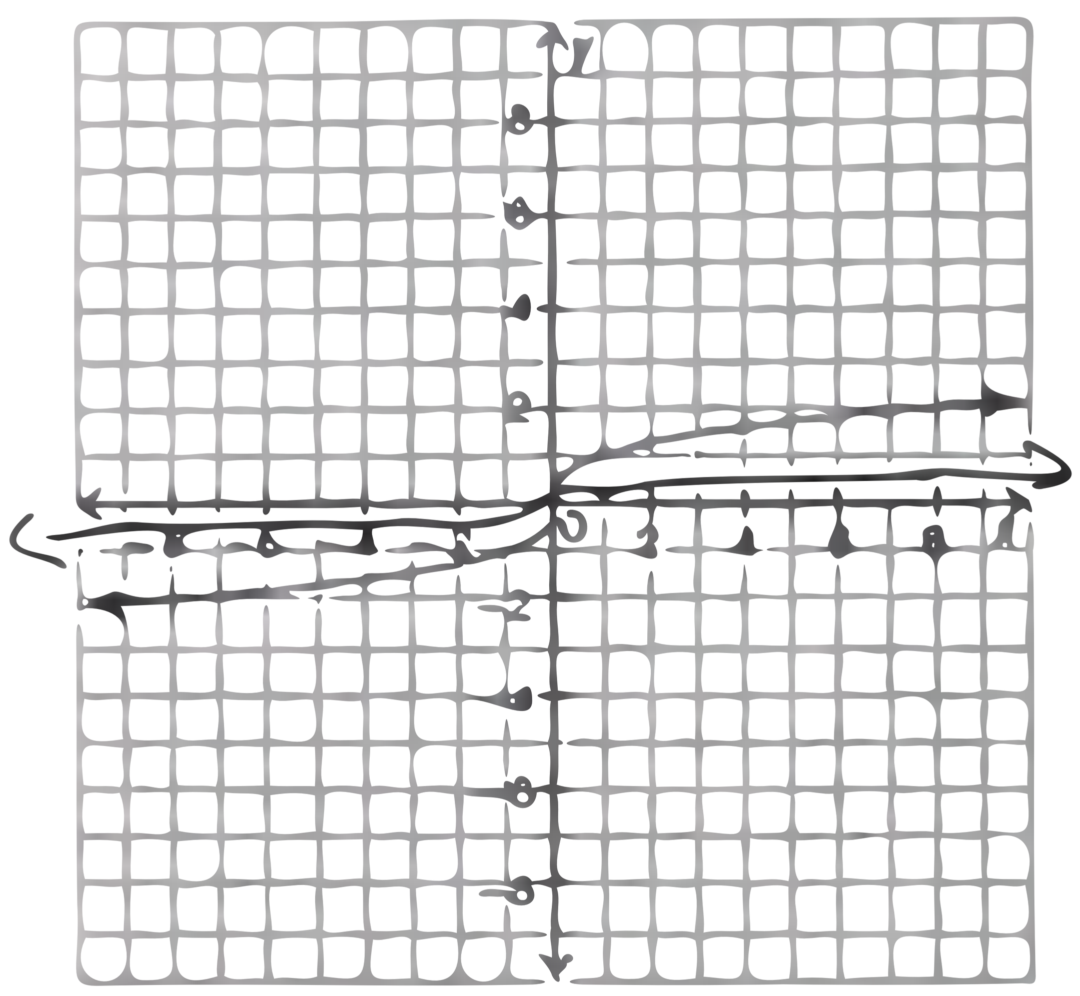
$\sqrt[3]{x}+3$

10. Translate the graph to the left 8 units.



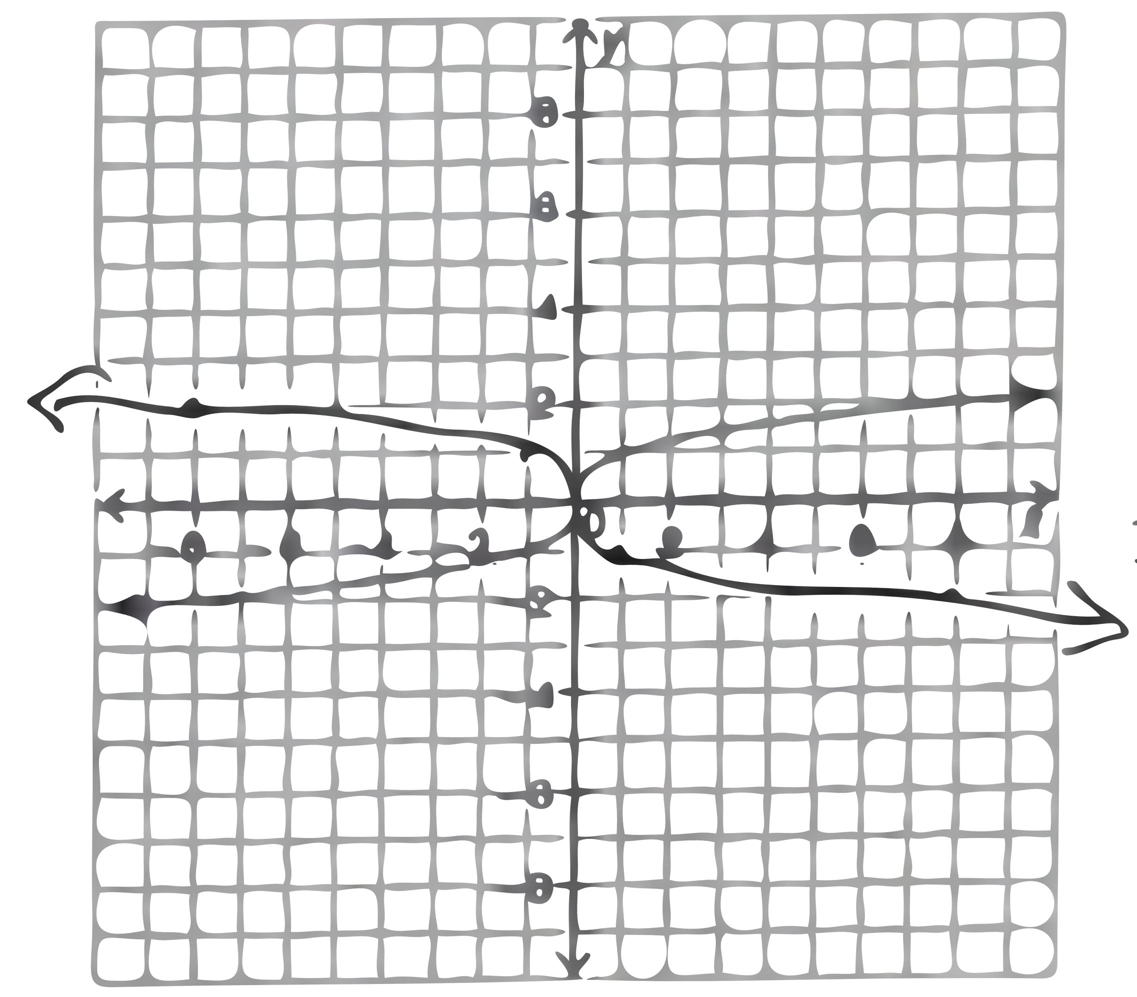
$\sqrt[3]{x+8}$

11. Compress the graph vertically by a factor of $\frac{1}{4}$.



$\frac{1}{4}\sqrt[3]{x}$

12. Reflect the graph over the y-axis.



$\sqrt[3]{-x}$

Describe how each graph represented by $f(x)$ would be transformed to create the graph represented by $g(x)$.

13. $f(x) = \sqrt{x}$
$g(x) = \sqrt{-x}$

reflect on y axis

14. $f(x) = \sqrt[3]{x-7} + 2$
$g(x) = \sqrt[3]{x-4} - 3$

left 3 down 5

15. $f(x) = \sqrt[3]{x+6}$
$g(x) = \frac{1}{2}\sqrt[3]{x+6}$

Vertically Compressed by 1/2

16. $f(x) = \sqrt[3]{x} + 5$
$g(x) = -\sqrt[3]{x} + 5$

reflection on $x=5$

Write an equation for each function by transforming the equation as described.

17. $f(x) = \sqrt{x} - 9$
translated to the right 5 units and stretched vertically by a factor of 2

$2\sqrt{x-5} - 9$

18. $f(x) = \sqrt[3]{x}$
translated to the left 6 units and down 3 units

$\sqrt[3]{x+6} - 3$

19. $f(x) = \frac{2}{3}\sqrt[3]{x}$
reflected over the x-axis

$-\frac{2}{3}\sqrt[3]{x}$

20. $f(x) = \sqrt[3]{x-2} + 1$
translated to the right 7 units

$\sqrt[3]{x-9} + 1$