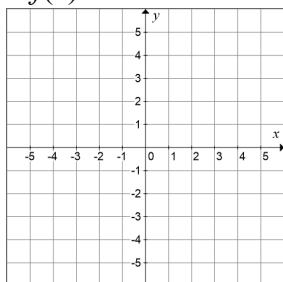


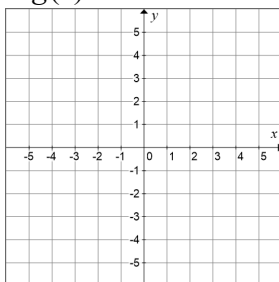
2.5 Worksheet B | Transformations of Functions

Graph the parent functions. Make sure they pass through all “key points.”

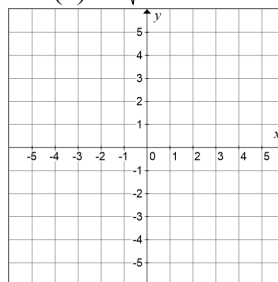
1.  $f(x) = x^2$



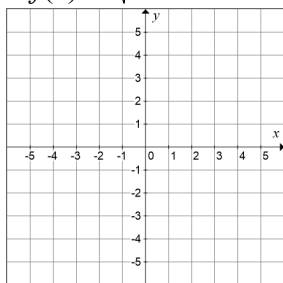
2.  $g(x) = x^3$



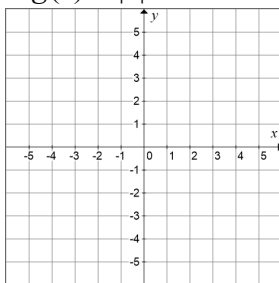
3.  $h(x) = \sqrt{x}$



4.  $f(x) = \sqrt[3]{x}$



5.  $g(x) = |x|$



Describe what the given transformations do to the coordinates of the function. Answer in complete sentences.

6.  $f(2x) - 5$

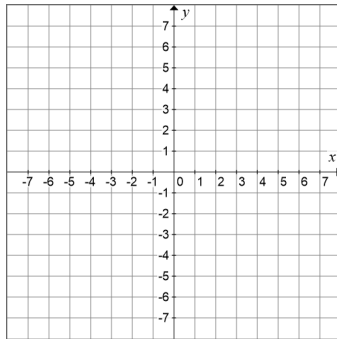
7.  $-g\left(\frac{x}{5}\right)$

8.  $\frac{1}{2}h(-x) + 3$

Identify the function's parent function. Graph the functions using transformations, and draw the "key points" with its graphs.

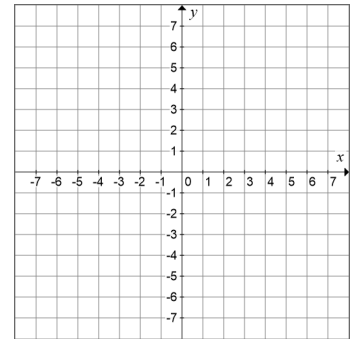
9.  $y = \sqrt{-x} + 5$

Parent:



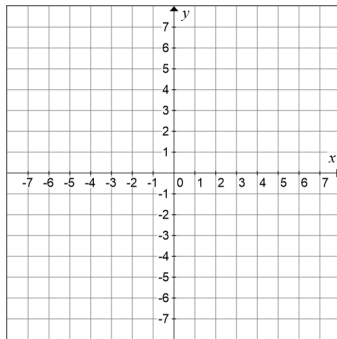
10.  $y = \left(\frac{x}{3}\right)^2 - 4$

Parent:



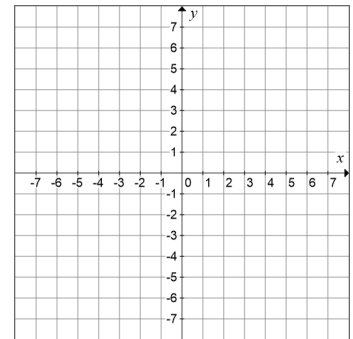
11.  $y = 4(x + 5)^2 + 1$

Parent:



12.  $y = -\sqrt[3]{x - 2} - 5$

Parent:

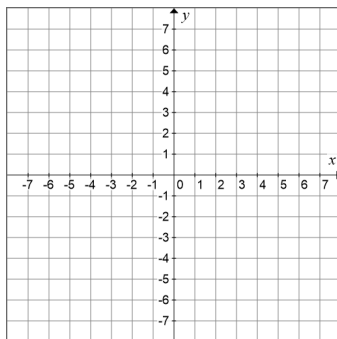


Graph the functions using transformations, and draw the "key points" with its graphs. Give the function's domain and range in interval notation.

13.  $y = 4\sqrt{x - 3}$

D:

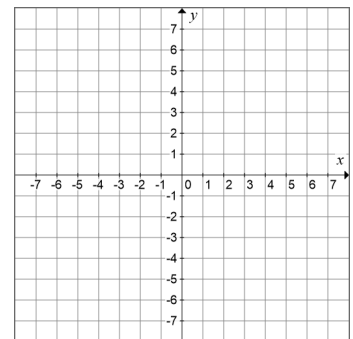
R:



14.  $y = (-x)^3 - 3$

D:

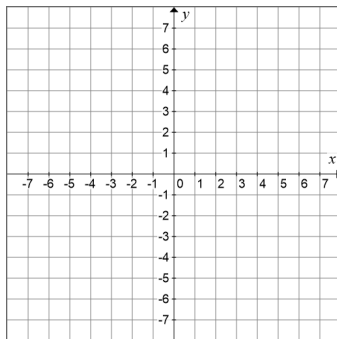
R:



15.  $y = 5 + \sqrt[3]{\frac{x}{4}}$

D:

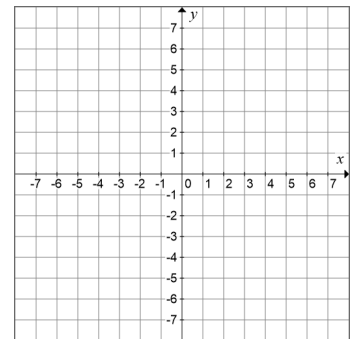
R:



16.  $y = -2|x - 2| + 6$

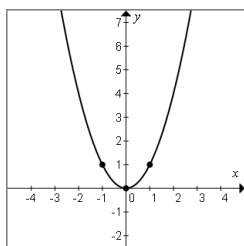
D:

R:

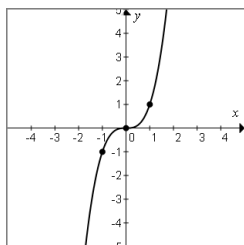


## Answer Key

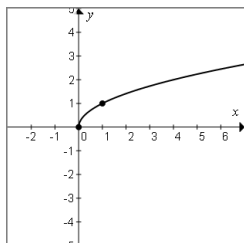
1.



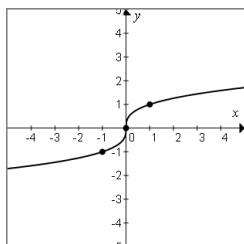
2.



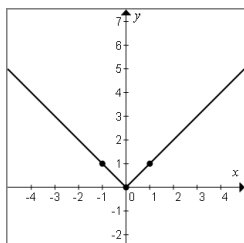
3.



4.



5.

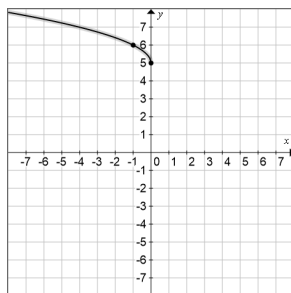


6. The  $x$ -coordinates will be divided by 2, and the  $y$ -coordinates will decrease by 5.

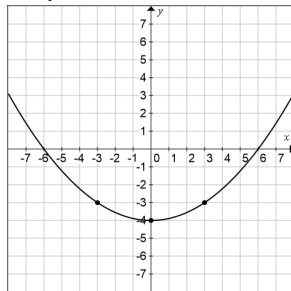
7. The  $x$ -coordinates will be multiplied by 5. The  $y$ -coordinates will become their opposite.

8. The  $x$ -coordinates will become their opposite. The  $y$ -coordinates will get divided by 2 and increased by 3.

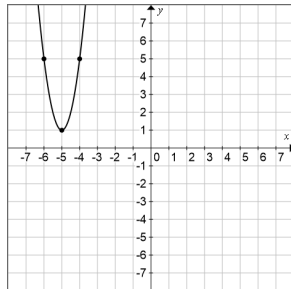
$$9. y = \sqrt{x}$$



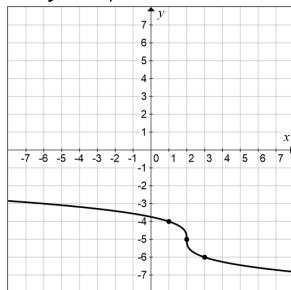
$$10. y = x^2$$



$$11. y = x^2$$

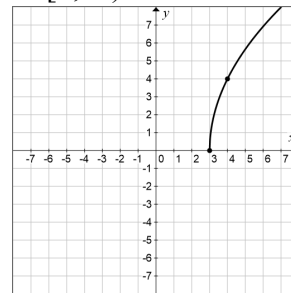


$$12. y = \sqrt[3]{x}$$



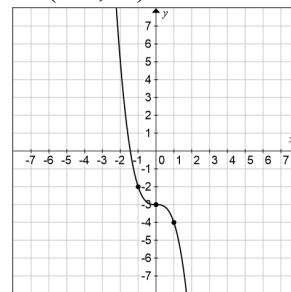
13. D:  $[3, \infty)$

R:  $[0, \infty)$



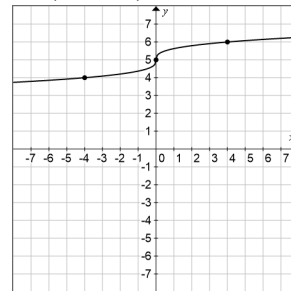
14. D:  $(-\infty, \infty)$

R:  $(-\infty, \infty)$



15. D:  $(-\infty, \infty)$

R:  $(-\infty, \infty)$



16. D:  $(-\infty, \infty)$

R:  $(-\infty, 6]$

