

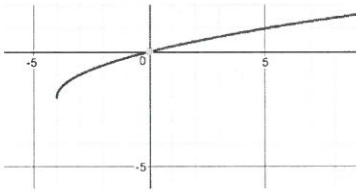
## Topic: Graphing Functions

In addition a 3.0, student will demonstrate the ability to analyze another person's work to identify and correct errors.

3	<input type="checkbox"/> <b>Transformations of graphs</b> <ul style="list-style-type: none"> <li>▪ Given graph, write the function.</li> <li>▪ Given a parent function and transformations, write a new function.</li> </ul> <input type="checkbox"/> Graph a polynomial <ul style="list-style-type: none"> <li>▪ Use the zeros to construct a rough graph of the function defined by the polynomial.</li> <li>▪ Show end behavior</li> </ul> <input type="checkbox"/> Represent addition, subtraction, multiplication, and conjugation of complex numbers geometrically on the complex plane; use properties of this representation for computation.
2	<input type="checkbox"/> <b>Identify transformations of graphs</b> <input type="checkbox"/> <b>Identify domain graphically</b> <input type="checkbox"/> <b>Identify range graphically</b> <input type="checkbox"/> Given the graph of a polynomial, identify the zeros. <input type="checkbox"/> Represent complex numbers on the complex plane in rectangular form (including real and imaginary numbers).
1	Insufficient progress towards foundational skills and knowledge.

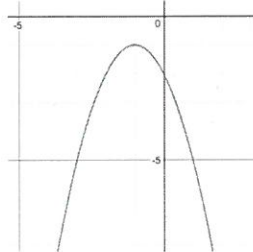
For each graph, describe the transformation and then write the function.

1.



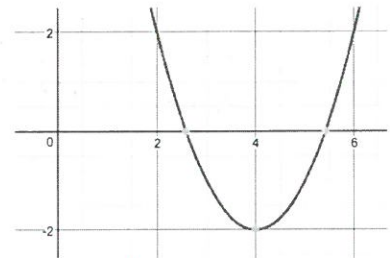
left 4, down 2  
 $f(x) = \sqrt{x+4} - 2$

4.



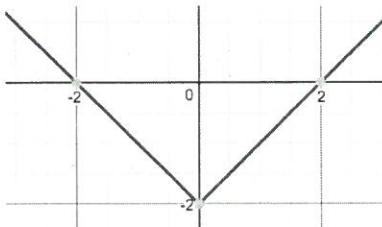
left 1, down 1, flip  
 $f(x) = -(x+1)^2 - 1$

7.



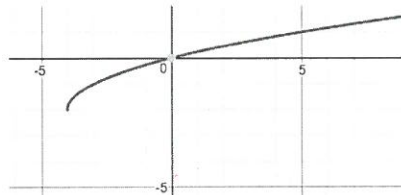
right 4, down 2  
 $f(x) = (x-4)^2 - 2$

2.



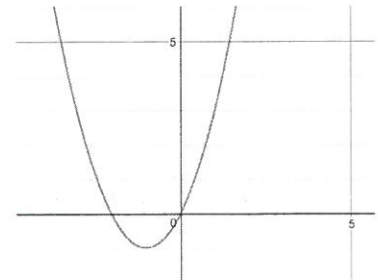
down 2  
 $f(x) = |x| - 2$

5.



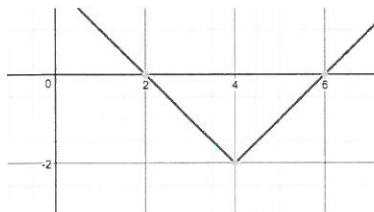
left 4, down 2  
 $f(x) = \sqrt{x+4} - 2$

8.



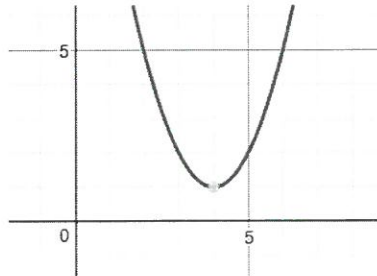
left 1, down 1  
 $f(x) = (x+1)^2 - 1$

3.



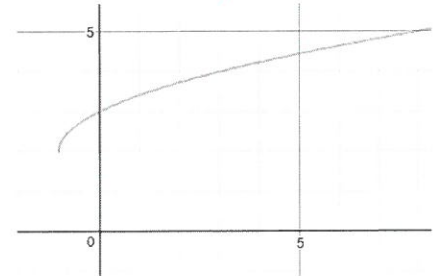
right 4, down 2  
 $f(x) = |x-4| - 2$

6.



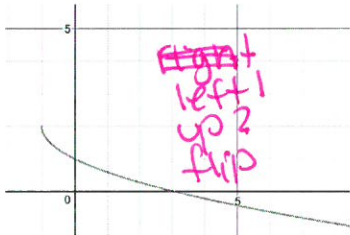
right 4, up 1  
 $f(x) = (x-4)^2 + 1$

9.



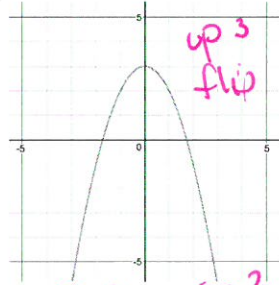
left 1, up 2  
 $f(x) = \sqrt{x+1} + 2$

10.



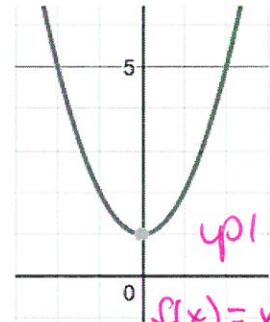
$$f(x) = -\sqrt{x+1} + 2$$

13.



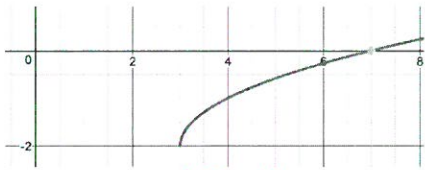
$$f(x) = -(x)^2 + 3$$

16.



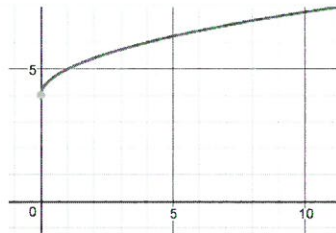
$$f(x) = x^2 + 1$$

11.



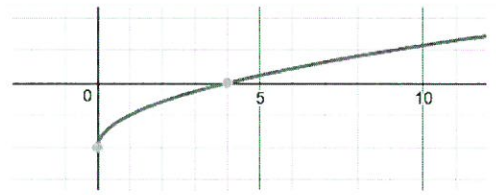
$$f(x) = \sqrt{x-3} - 2$$

14.



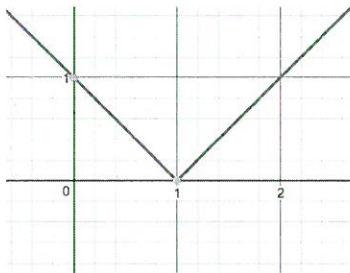
$$f(x) = \sqrt{x} + 4$$

17.



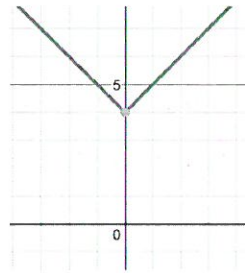
$$f(x) = \sqrt{x} - 2$$

12.



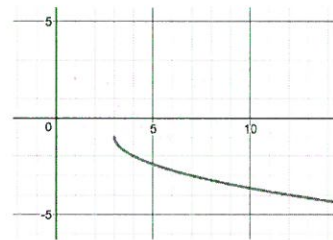
$$f(x) = |x-1|$$

15.



$$f(x) = |x| + 4$$

18.



$$f(x) = -\sqrt{x-3} - 1$$