

Please complete ALL problems.

LESSON

Practice A

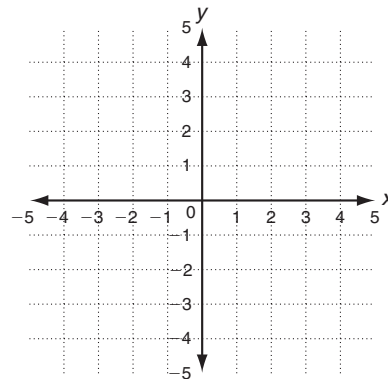
5-1 Using Transformations to Graph Quadratic Functions

Graph the quadratic function by using a table.

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

- a. Complete the table to find ordered pairs for the function.
- b. Plot the ordered pairs on the coordinate plane.

x	$f(x) = x^2 - 3$	$(x, f(x))$
-2	$f(-2) = (-2)^2 - 3$	$(-2, 1)$
-1		
0		
1		
2		



The quadratic parent function is $f(x) = x^2$. Its graph is a parabola with its vertex at the origin $(0, 0)$. Describe each transformation from the parent function.

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

3. $h(x) = (x - 1)^2$

4. $g(x) = x^2 + 7$

5. $h(x) = \left(\frac{1}{3}x\right)^2$

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

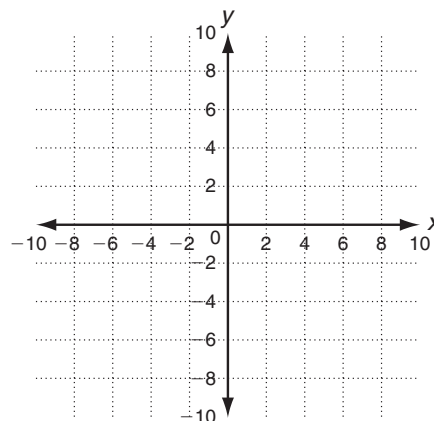
7. $h(x) = 5x^2$

The vertex form of a quadratic function

is $f(x) = a(x - h)^2 + k$.

8. a. The parent function $f(x) = x^2$ is translated 2 units left and 3 units up. Write the quadratic function in vertex form.

- b. Graph the translated function.



Please complete ALL problems.



LESSON

5-1

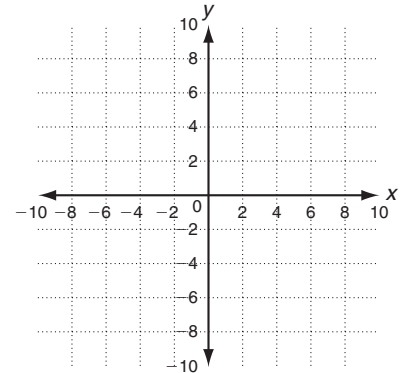
Practice B

Using Transformations to Graph Quadratic Functions

Graph the function by using a table.

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

x	$f(x) = x^2 + 2x - 1$	$(x, f(x))$
-2		
-1		
0		
1		
2		

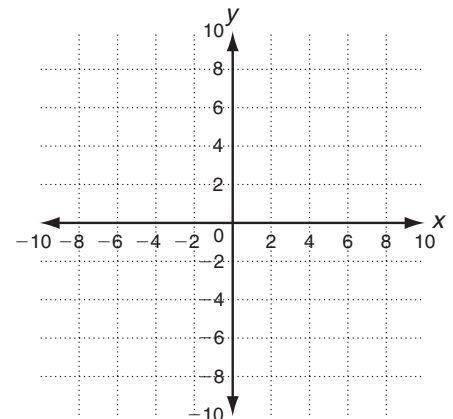


Using the graph of $f(x) = x^2$ as a guide, describe the transformations, and then graph each function. Label each function on the graph.

2. $h(x) = (x - 2)^2 + 2$

3. $h(x) = -(3x)^2$

4. $h(x) = \left(\frac{1}{2}x\right)^2$



Use the description to write a quadratic function in vertex form.

5. The parent function $f(x) = x^2$ is reflected across the x -axis, horizontally stretched by a factor of 3 and translated 2 units down to create function g .

6. A ball dropped from the top of tower A can be modeled by the function $h(t) = -9.8t^2 + 400$, where t is the time after it is dropped and $h(t)$ is its height at that time. A ball dropped from the top of tower B can be modeled by the function $h(t) = -9.8t^2 + 200$. What transformation describes this change? What does this transformation mean?
