



5-4 Additional Practice

Transformations of Piecewise-Defined Functions

For each function, identify the vertex and axis of symmetry.

1. $f(x) = |x| - 5$

2. $g(x) = |x - 3|$

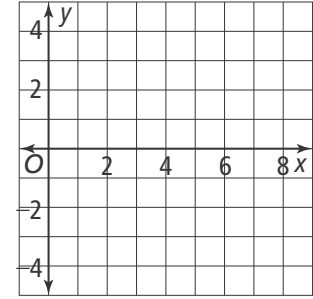
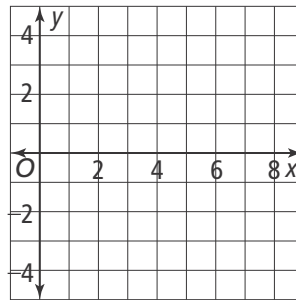
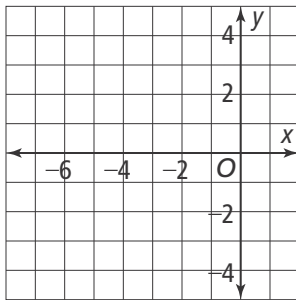
3. $h(x) = |x + 7| - 4$

Compare each function with $f(x) = |x|$. Describe the graph of g as a transformation of the graph of f . Then graph the function.

4. $g(x) = 2|x + 3| - 4$

5. $g(x) = -\frac{1}{2}|x - 5| + 3$

6. $g(x) = -3|x - 4| - 1$



7. Explain why the vertex for $f(x) = a|x - h| + k$ is unaffected by a .
8. For three years, a local coffee shop's rewards program offered 1 point for every whole dollar spent and an additional 5 points for each purchase. Suppose the shop changes the points offered to an additional 8 points for each purchase and 1 point for every whole dollar spent.
- Write two step function rules, $f(x)$ and $g(x)$, that model each rewards program.
 - Describe the effect of the new points program on the corresponding graphs.