

Objectives

- Graph and transform absolute-value functions.

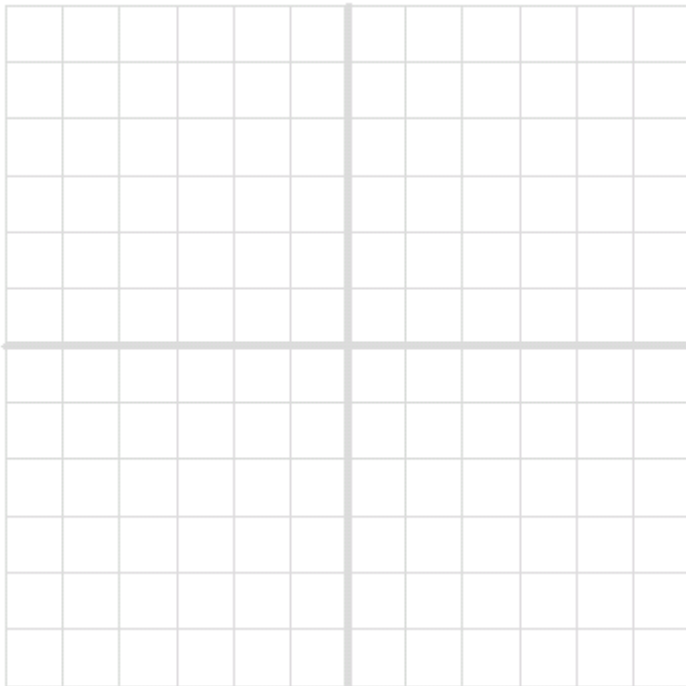
Vocabulary

Absolute-value functions –

Example 1

Let $g(x)$ be the indicated transformation of $f(x) = |x|$. Write the rule for $g(x)$ and graph the function

- a) **2 units up**



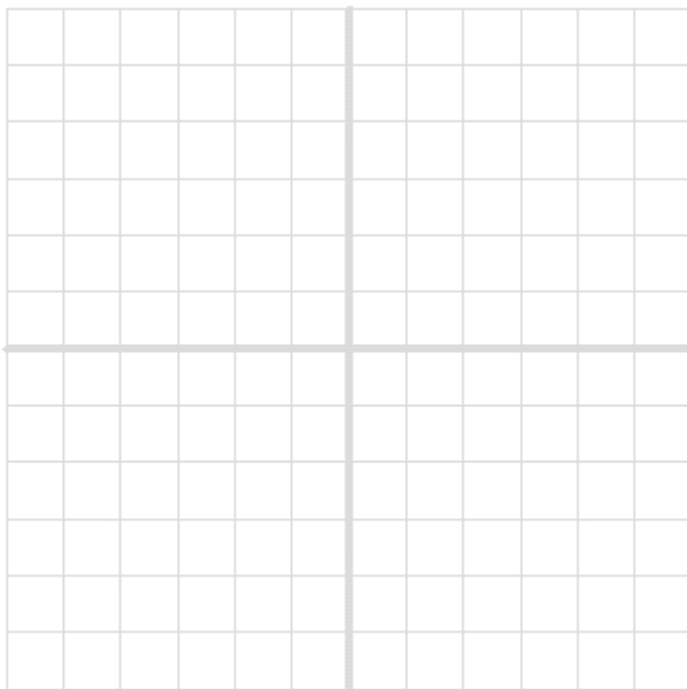
b) **3 units left**



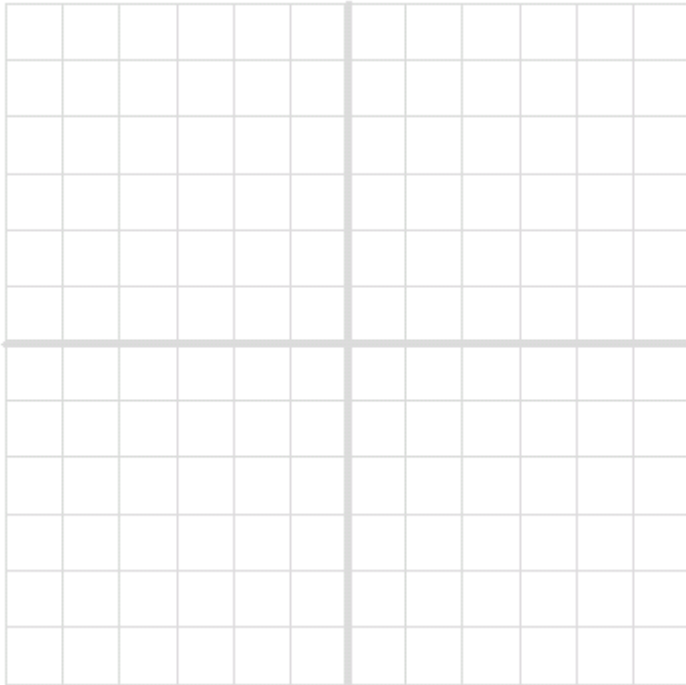
Try it!

Let $g(x)$ be the indicated transformation of $f(x) = |x|$. Write the rule for $g(x)$ and graph the function

c) **2 units up**

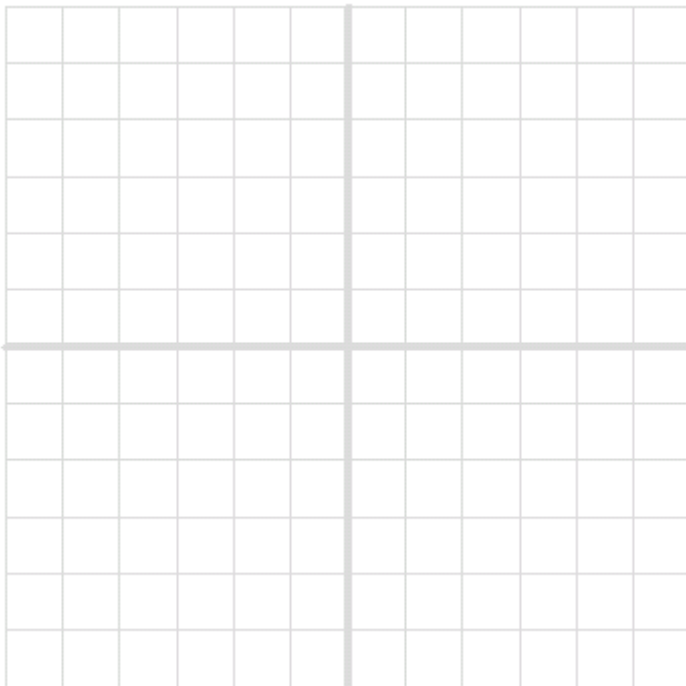


d) **3 units left**



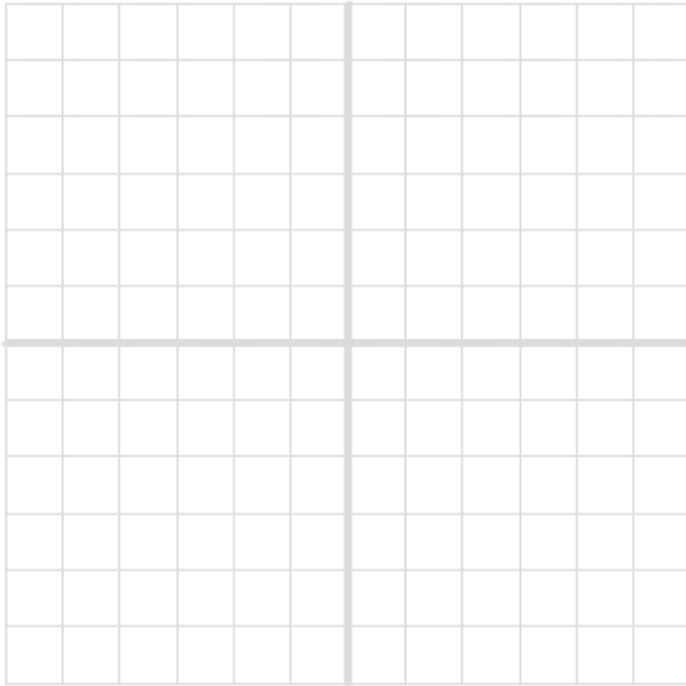
Example 2

Translate $f(x) = |x|$, so that the vertex is at $(-5, 3)$. Then graph.



Try it!

Translate $f(x) = |x|$, so that the vertex is at (4,-2). Then graph.



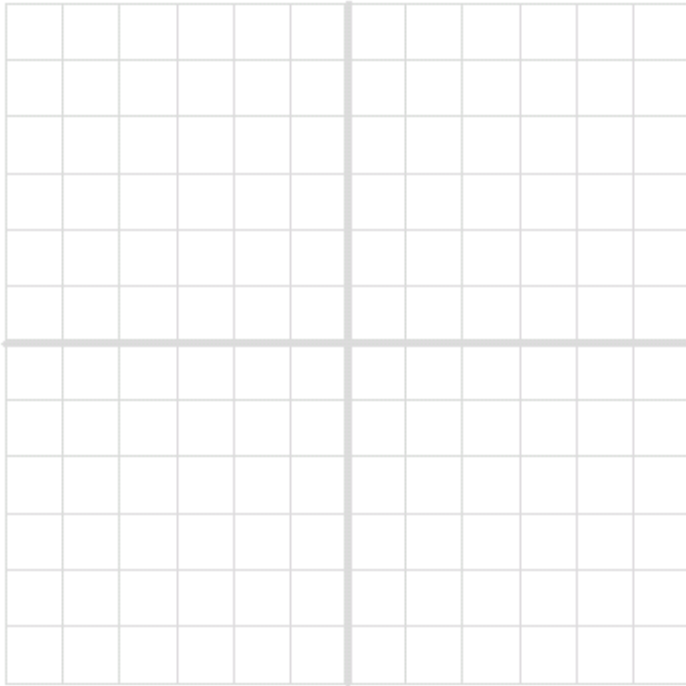
REMEMBER!

Reflection across x-axis: $g(x) = -f(x)$

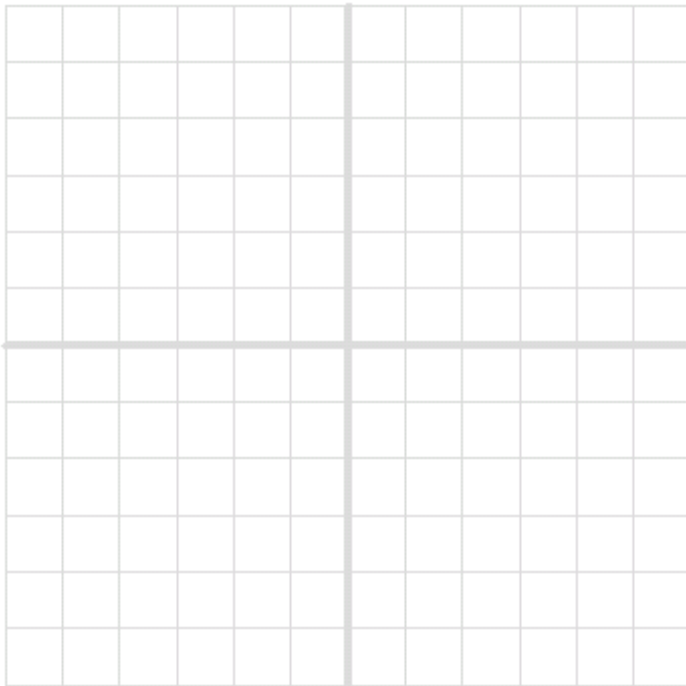
Reflection across y-axis: $g(x) = f(-x)$

Example 3

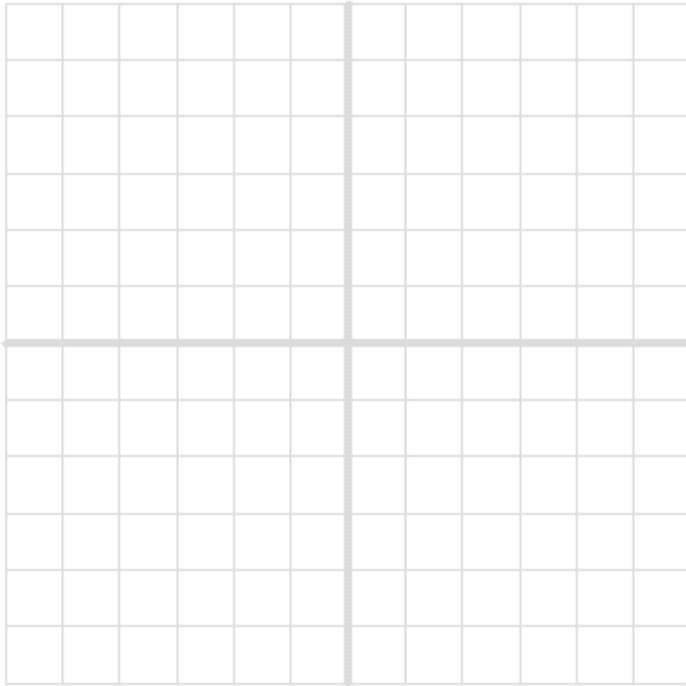
a) Reflect the graph of $f(x) = |x + 2| + 1$ across the x-axis.



b) Stretch the graph of $f(x) = |x| - 2$ vertically by a factor of 2.



- c) **Compress the graph of $f(x) = |x - 1| - 3$ horizontally by a factor of 0.5**

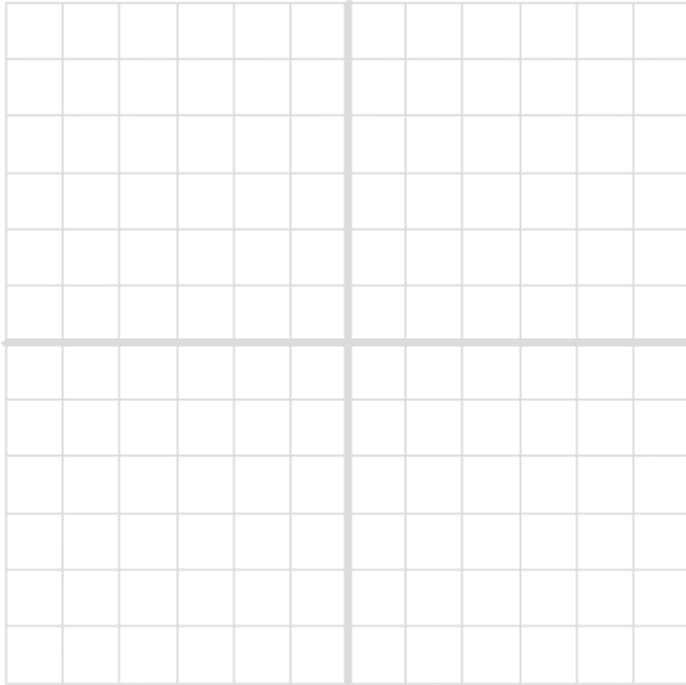


Try it !

- a) **Reflect the graph of $f(x) = -|x - 4| + 3$ across the y-axis.**



b) Stretch the graph of $f(x) = |4x| - 3$ horizontally by a factor of 2.



c) Compress the graph of $f(x) = |x| + 1$ vertically by a factor of 0.5

