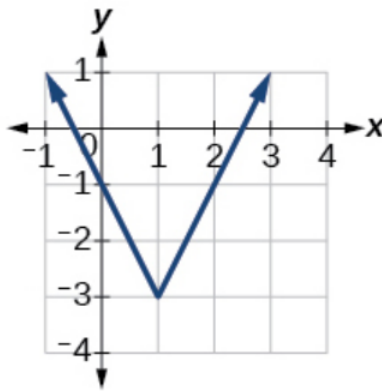


Exercise 64

For the following exercises, write an equation for the transformation of $f(x) = |x|$.



Solution

Notice that this graph of the absolute value function has not only been shifted to the right by 1 unit and down by 3 units, but also has been vertically stretched by a factor of 2. Begin with the parent function.

$$|x|$$

Multiply it by 2 to vertically stretch it by a factor of 2.

$$2|x|$$

Replace x with $x - 1$ to shift the graph to the right by 1 unit.

$$2|x - 1|$$

Subtract 3 to shift the graph down by 3 units.

$$y = 2|x - 1| - 3$$