

## Exercise 18

Graph the absolute value function  $f(x) = -2|x - 1| + 3$ .

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### Solution

Start with the parent function.

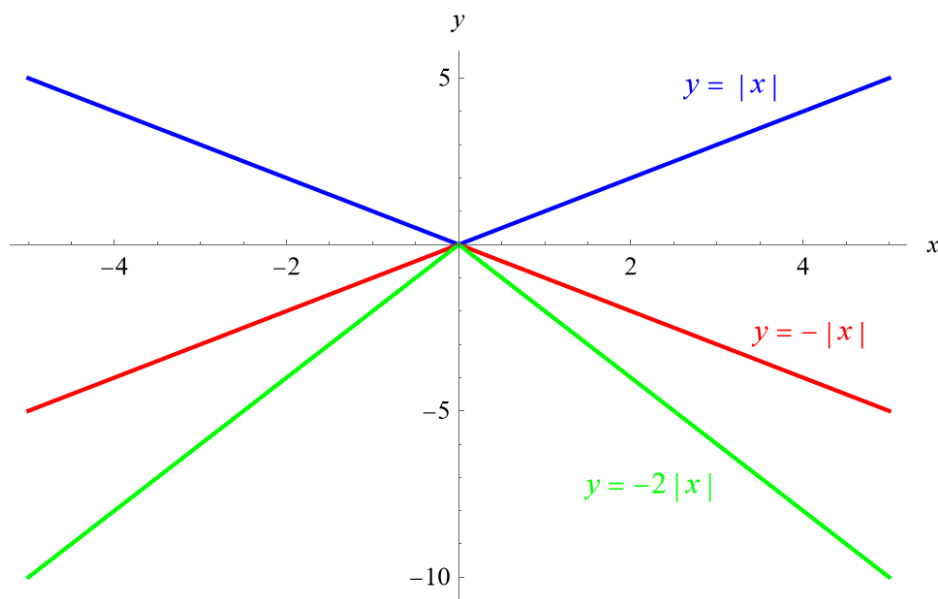
$$|x|$$

Multiplying this by  $-1$  reflects the graph over the  $x$ -axis.

$$-|x|$$

Multiplying this by 2 vertically stretches the graph by a factor of 2.

$$-2|x|$$



Replacing  $x$  with  $x - 1$  shifts the graph to the right by 1 unit.

$$-2|x - 1|$$

Adding 3 to this shifts the graph up by 3 units.

$$-2|x - 1| + 3$$

