

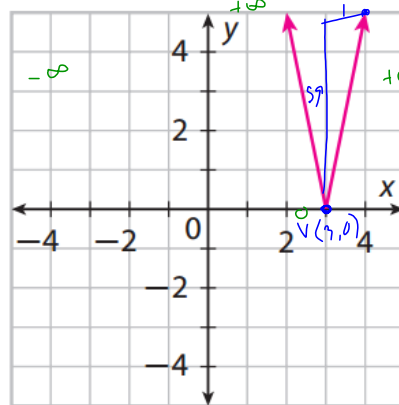
Writing an Absolute Value Function

- Step 1: Identify the vertex (h,k)
- Step 2: Identify a (stretch/compression factor)
- Step 3: Write the equation using the general form of the absolute value function

$$y = a|x-h| + k$$

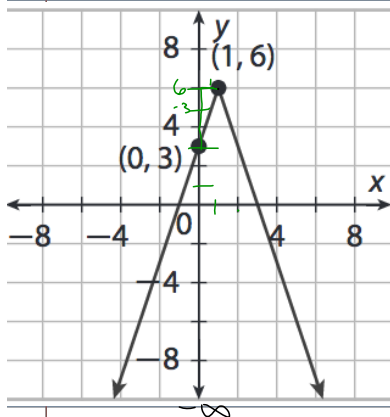
$V(h, k)$
 $a = \text{slope}$

5 Example
 Given the graph of an absolute value function, write the function in the form $f(x) = a|x-h| + k$.



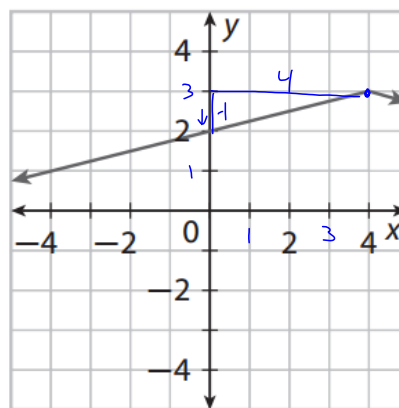
$V(3, 0)$
 $h \quad k$
 $a = \frac{\text{rise}}{\text{run}} = \frac{5}{1}$
 $y = 5|x-3| + 0$
 $D: \{x | -\infty < x < \infty\}$
 $(-\infty, \infty)$
 $R: \{y | 0 \leq y < \infty\}$
 $[0, \infty)$

6 Example
 Given the graph of an absolute value function, write the function in the form $f(x) = a|x-h| + k$.



$V(1, 6), a = -\frac{3}{1}$
 $y = -3|x-1| + 6$
 $D: \{x | -\infty < x < \infty\}$
 $(-\infty, \infty)$
 $R: \{y | -\infty < y \leq 6\}$
 $(-\infty, 6]$

8 Example
 Given the graph of an absolute value function, write the function in the form $f(x) = a|x-h| + k$.



$V(4, 3)$
 $a = -\frac{1}{4}$
 $y = -\frac{1}{4}|x-4| + 3$
 $D: \{x | -\infty < x < \infty\}$
 $(-\infty, \infty)$
 $R: \{y | -\infty < y \leq 3\}$
 $(-\infty, 3]$