

Given a Function

Graph the Piecewise Function

Step 1: Evaluate the first function at the lower domain bound and plot point,

Step 2: Evaluate the first function at the upper domain bound and plot the point

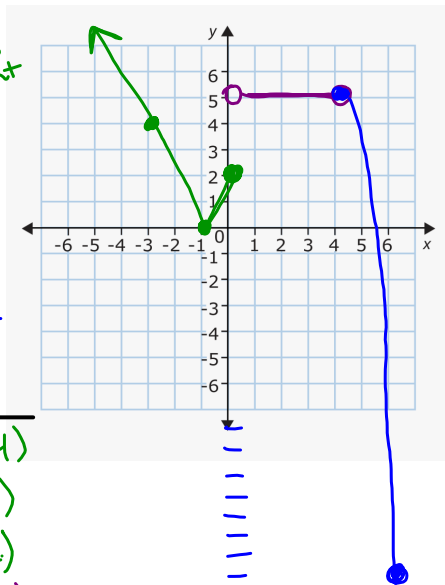
Step 3: Connect the two points. (If the function is not linear, reference it's parent function and graph more points to more accurately sketch the curve. You can always draw more and erase.)

Step 4: Repeat for each function piece

$$f(x) = \begin{cases} 2|x + 1| & x \leq 0 \\ 5 & 0 < x < 4 \\ -x^2 + 21 & 4 \leq x \leq 6 \end{cases}$$

Let's Practice the Steps!

$$f(x) = \begin{cases} \text{Absolute Value V shape} \\ \text{no lower bound} \\ \text{Keep left arrow} \\ \text{closed point} \\ 2|x + 1| & x \leq 0 \\ \text{Constant} \\ \text{horizontal line} \\ \text{open point} \\ 5 & 0 < x < 4 \\ \text{Quadratic} \\ \text{U shape} \\ -x^2 + 21 & 4 \leq x \leq 6 \\ \text{a(x-h)^2 + k} \end{cases}$$



x	y = one of the three functions	(x, y)
-3	$2 (-3)+1 = 2 -2 = 4$	$(-3, 4)$
-1	$2 (-1)+1 = 2 0 = 0$	$(-1, 0)$
0	$2 (0)+1 = 2 1 = 2$	$(0, 2)$
0	5	$(0, 5)$
4	5	$(4, 5)$
4	$-(4)^2 + 21 = -16 + 21 = 5$	$(4, 5)$
6	$-(6)^2 + 21 = -36 + 21 = -15$	$(6, -15)$