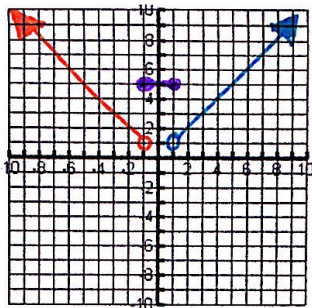


Piecewise Functions ©

Example 1

Graph the following Piecewise Function. Make sure you restrict your domain for certain "pieces" of the function.

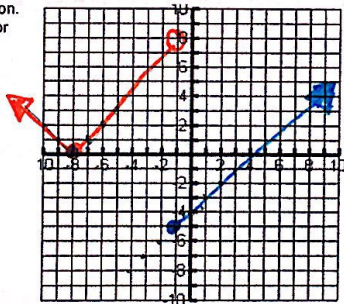
$$f(x) = \begin{cases} -x, & x < -1 \\ 5, & -1 \leq x \leq 1 \\ x, & x > 1 \end{cases}$$



Example 2

Graph the following Piecewise Function. Make sure you restrict your domain for certain "pieces" of the function.

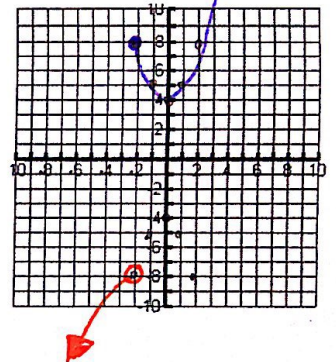
$$f(x) = \begin{cases} x-4, & x \geq -1 \\ |x+8|, & x < -1 \end{cases}$$



Example 3

Graph the following Piecewise Function. Make sure you restrict your domain for certain "pieces" of the function.

$$f(x) = \begin{cases} -x^2 - 4, & x < -2 \\ x^2 + 4, & x \geq -2 \end{cases}$$



Evaluating Piecewise Functions

Given the following piecewise function, evaluate the following.

Hint: You can use your graph from the previous example if needed.

$$f(x) = \begin{cases} -x, & x < -1 \\ 5, & -1 \leq x \leq 1 \\ x, & x > 1 \end{cases}$$

$f(-9) =$	9	$f(-1) =$	5	$f(1) =$	5
$f(-5) =$	5	$f(0) =$	5	$f(6) =$	6

Piecewise Functions in Context

Postal charges for mailing packages depend on both weight and destination and this leads to an application of piecewise functions. For example, the rates for a certain destination are shown in the table below.

Weight in Pounds (x)	Postage Cost (y)
Under 1	\$0.80
1 or more, but under 2	\$1.00
2 or more, but under 4	\$1.25
4 or more	\$1.50

Create a piecewise function using the table above.

Graph the piecewise function on the following graph.

$$f(x) = \begin{cases} 0.80 & 0 \leq x < 1 \\ 1.00 & 1 \leq x < 2 \\ 1.25 & 2 \leq x < 4 \\ 1.50 & x \geq 4 \end{cases}$$

