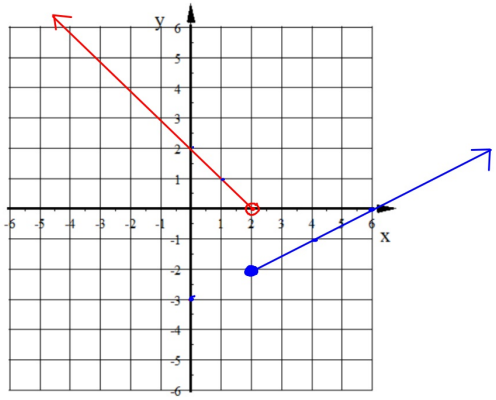
Graph y = -x + 2
but only when x<2

Using the same graph:

Graph y = 1/2x - 3
but only when x ≥ 2

This graph is called
a Piecewise Function



Graph y = -x + 2
but only when x<2

Graph y = 1/2x - 3
but only when x ≥ 2

The rule for this piecwise function:

$$f(x) = \begin{cases} -x+2, \text{ if } x < 2 \\ 1/2x - 3, \text{ if } x \geq 2 \end{cases}$$

the equation to graph

When to graph it.
The x-values (Domain) when this equation is visible.

$$f(x) = \begin{cases} -x+2, \text{ if } x < 2 \\ 1/2x - 3, \text{ if } x \geq 2 \end{cases}$$

For each piecewise function find f(-8) and f(5).

1. $f(x) = \begin{cases} 2x & \text{if } x < 0 \\ 0 & \text{if } x \geq 0 \end{cases}$

f(-8) = 2(-8) = -16

f(5) = 0

2. $g(x) = \begin{cases} 2 - x & \text{if } x \le 5 \\ -x^2 & \text{if } 5 < x < 8 \\ 6 & \text{if } 8 \le x \end{cases}$

g(-8) = $2-(-8)$ $2+8$ $=10$

g(5) = $2-(5) = -3$

3. $h(x) = \begin{cases} 2x + 4 & \text{if } x \le -8 \\ -1 & \text{if } -8 < x < 5 \\ x^2 & \text{if } 5 \le x \end{cases}$

h(-8) = $2(-8)+4$ $-16+4$ $=-12$

h(5) = $(5)^2 = 25$

4. $k(x) = \begin{cases} 15 & \text{if } x \le -5 \\ x & \text{if } -5 < x < 1 \\ 7 - \frac{x}{2} & \text{if } 1 < x \end{cases}$

k(-8) = 15

k(5) = $7 - \frac{5}{2}$ $\frac{14}{2} - \frac{5}{2} = 9/2$

Graph this piecewise function:

1. $f(x) = \begin{cases} 2x + 3, & x < 0 \\ 3 - x, & x \ge 0 \end{cases}$

To the left of 0

To the right of 0

Evaluate the following:

$f(0) =$ 3 Find the y-coord of the point on the graph where x=0

$f(-3) =$ −3 Find the y-coord of the point on the graph where x=-3

$f(2) =$ 1 Find the y-coord of the point on the graph where x=2