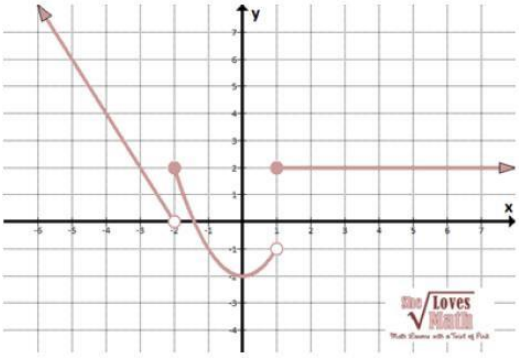
1.6 Piecewise Functions

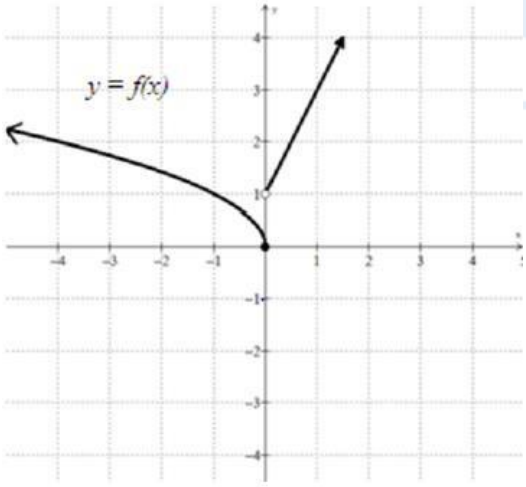
Definition: A piecewise function is defined by using 2 or more rules on 2 or more intervals; as a result, the graph is made up of 2 or more pieces.

Ex 1: Determine an equation to represent *f(x):*



Is this function continuous?

Ex 2: Determine an equation of:



Ex 3: Graph this function:

$$f(x)=\begin{cases}2x+8 & \text{if } x\le -2\\ x^2 & \text{if } x>-2\end{cases}$$

Is it continuous?

Ex 4: Algebraically determine if the function below is continuous or not. If not, you must identify where it is discontinuous.

$$f(x)=\begin{cases}1-x^2 & \text{if } x\le 0\\ x+1 & \text{if } 0<x\le 1\\ (x-1)^2 & \text{if } x>1\end{cases}$$

Ex 5: Write the basic absolute value function as a piecewise function:

Ex 6: Write the absolute value function below as a peicewise function:

$$f(x)=|2x-5|$$