

Name:

Date:

Class:

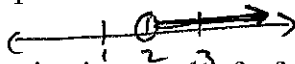
# Graphing Piecewise Functions

Discussion:

- 1.) What is the minimum number of points needed to graph a line?
- 2.) If  $f(x) = 5x - 4$ , find  $f(-2)$
- 3.) If you had to graph  $x > 2$  on a number line, what would it look like?

2

$$5(-2) - 4 = -14$$



- 4.) A piecewise function is a graph of a function (how would you know if it is a function?) that has multiple connected or unconnected parts. *vertical line test*

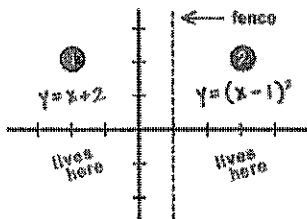
## EXPLANATION

Graph

$$y = \begin{cases} x+2 & ; x < 1 \text{ (1)} \\ (x-1)^2 & ; x \geq 1 \text{ (2)} \end{cases}$$

*It's in two pieces!*

Each piece must live ONLY in its own neighborhood.  
Let's put up a fence, so we don't make any mistakes:

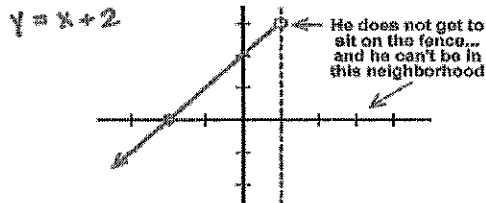


Now, we just need to figure out who the fence owner is...

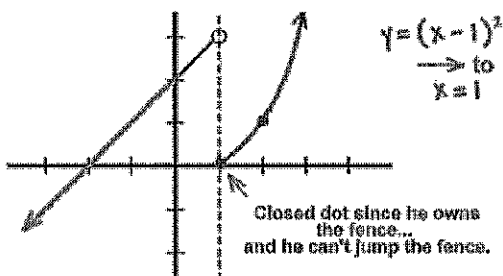
$$y = \begin{cases} x+2 & ; x < 1 \\ (x-1)^2 & ; x \geq 1 \end{cases}$$

*This guy has the "≥", so he gets to live ON the fence.*

Let's graph part (1):



Now, let's graph part (2):



Done!

## Lesson:

Graph the function by graphing each part separately.  
Choose two points (one must be on the fence).

$$f(x) = \begin{cases} x+4 & ; x < 3 \\ -1x & ; x \geq 3 \end{cases}$$

