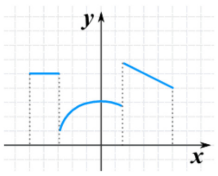
DO NOW

Graph: $y = 2x + 1$

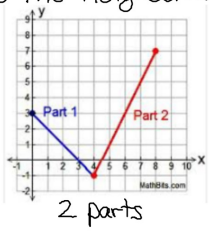
4.3 Piecewise Functions

piecewise function - pieces of more than one function on the same graph

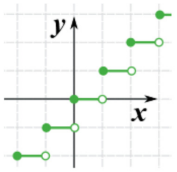
* each graph has its own "neighborhood"
  ↳ based on inputs (x-values) (domain)
* "fences" - divides the neighborhoods



3 parts



2 parts



step function

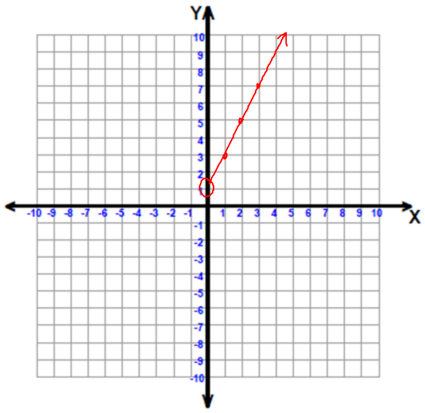
Graphing based on a restricted domain (neighborhood):

1. Graph the complete function.
2. Determine if the domain includes the endpoints.
   (Is the "fence" part of the "neighborhood")
   Decide based on the inequality sign.
   $\geq, \leq$ ← included
   $>, <$ ← not included
3. Erase the part of the function not in the domain ("neighborhood")

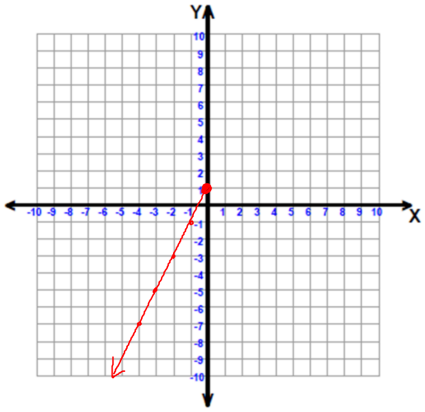
1. Graph $f(x) = 2x + 1$ for $x > 0$

$m = \frac{2\uparrow}{1\rightarrow}$

$b = 1$



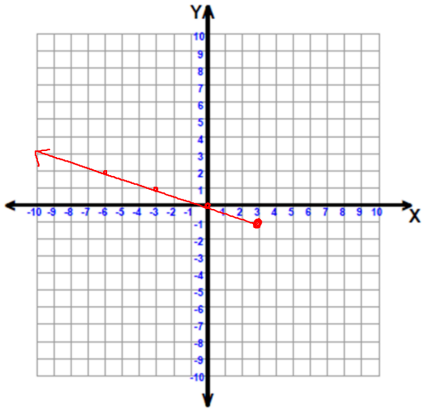
2. Graph $f(x) = 2x + 1$ for $x \leq 0$



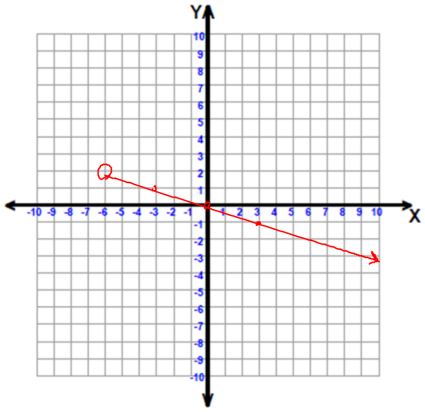
3. Graph $f(x) = -\frac{1}{3}x$ for $x \leq 3$

$m = \frac{-1\downarrow}{3\rightarrow}$

$b = 0$



4. Graph $f(x) = -\frac{1}{3}x$ for $x > -6$



HOMEWORK

Worksheet HW 4.3

Piecewise Function Intro