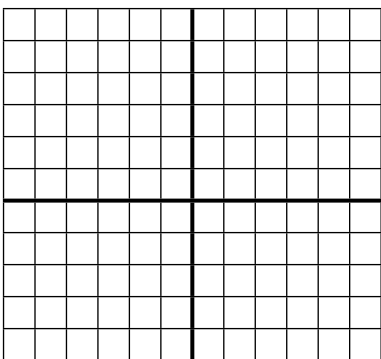


### Piecewise Defined Functions — 3.4

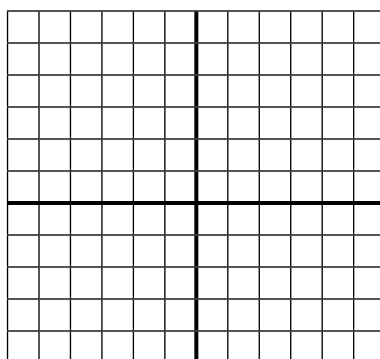
A piece-wise defined function is a function that has different “rules” for various x-values.

Graph: 
$$f(x) = \begin{cases} (x+2)^2 - 1, & x < -2 \\ 3, & -2 \leq x < 0 \\ \frac{1}{2}x + 3, & x \geq 0 \end{cases}$$

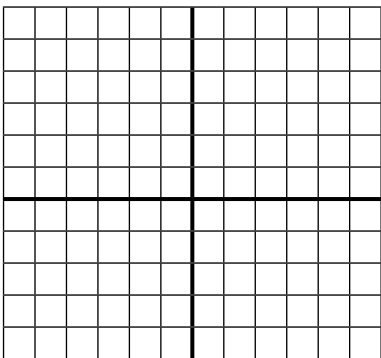
First graph  $f(x) = (x+2)^2 - 1$



Next graph  $f(x) = 3$



Now graph  $f(x) = \frac{1}{2}x + 3$



Finally graph  $f(x) = \begin{cases} (x+2)^2 - 1, & x < -2 \\ 3, & -2 \leq x < 0 \\ \frac{1}{2}x + 3, & x \geq 0 \end{cases}$

