Algebra 1 9.7

Identify and graph step functions

Identify and graph absolute value functions

Identify and graph piecewise functions

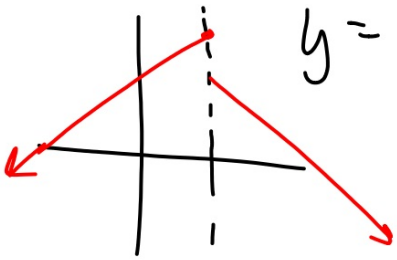
step function

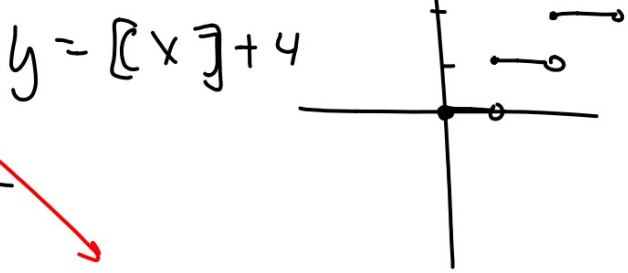
(greatest integer function)

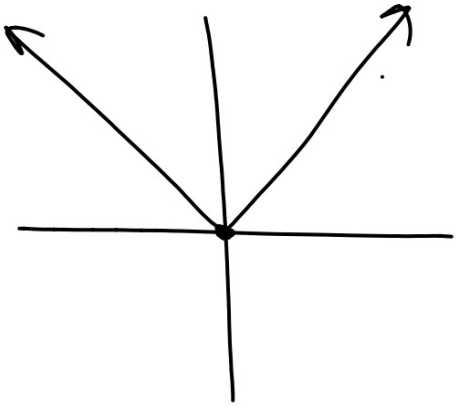
absolute value

piecewise

Quiz 9.7 Fri.







KeyConcept Absolute Value Function

Parent function: $f(x) = |x|$, defined as

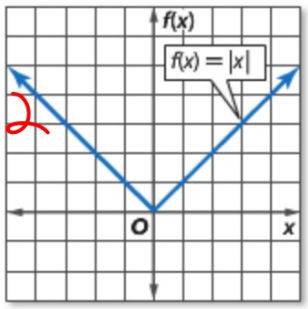
$$f(x) = \begin{cases} x \text{ if } x > 0 \\ 0 \text{ if } x = 0 \\ -x \text{ if } x < 0 \end{cases}$$

Type of graph: V-shaped

Domain: all real numbers

Range: all nonnegative real numbers

$y = 2|x-5|+2$

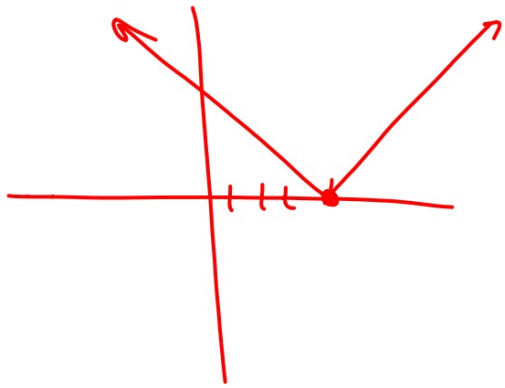


Parent graph

Whiteboards

Example 3 Absolute Value Function

Graph $f(x) = |x - 4|$. State the domain and range.



f(x) = |x+3|

Example 4 Piecewise-Defined Function

Graph $f(x) = \begin{cases} -2x \text{ if } x > 1 \\ x + 3 \text{ if } x \leq 1 \end{cases}$. State the domain and range.

$y = -2$

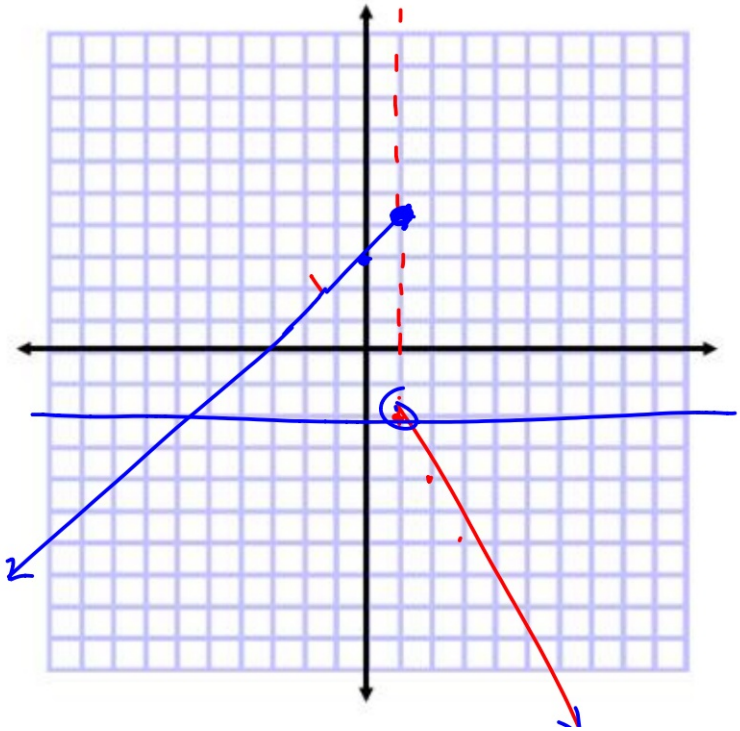
$y = 3$

$y = -2x + 0$

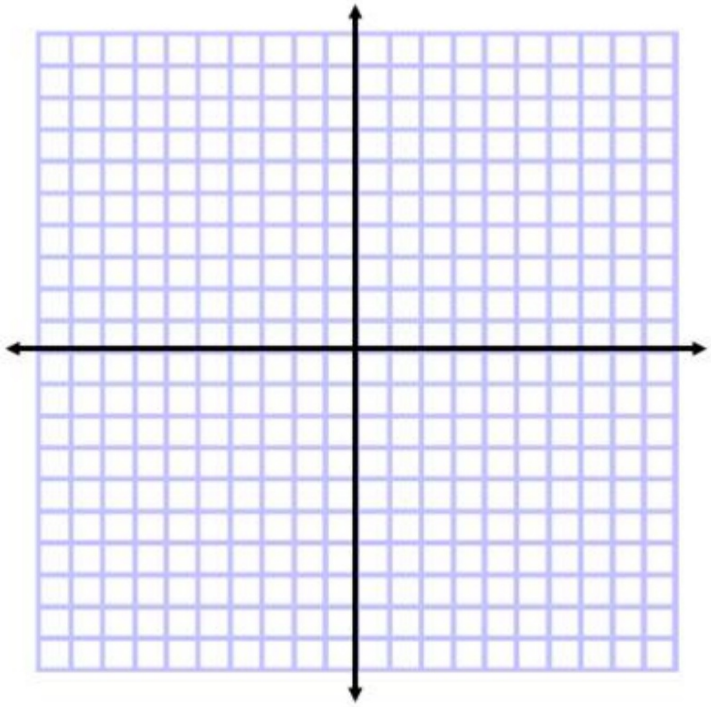
$y = x + 3$

D ARN

R $y \leq 4$



Graph $f(x) = \begin{cases} x + 2 & \text{if } x > -1 \\ 3x - 5 & \text{if } x \geq -1 \end{cases}$



$$\begin{cases} x - 2 & \text{if } x > 3 \\ -2x + 1 & \text{if } x \leq 3 \end{cases}$$