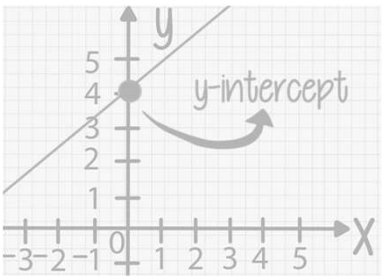
Name: _____ Period: _____ Module 4 Cheat Sheet

Piecewise Functions

Y-INTERCEPT



1. Graph the y-intercept.

SLOPE

2. Use the slope to graph the line.

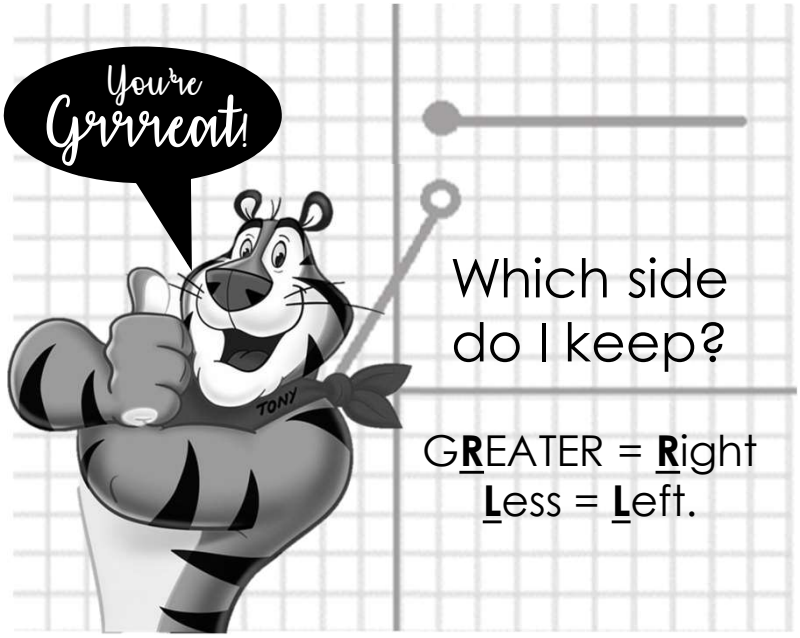
$$\text{slope} = \left(\frac{\text{rise}}{\text{run}}\right)$$

DOMAIN

Is it an open dot or a closed dot?

If < or > open dot like this → ○

If ≤ or ≥ closed dot like this → ●



Which side do I keep?

G**R**EATER = **R**ight

Less = **L**eft.

EVALUATING

Steps for Evaluating:

1. Which function is it?
   Example: f(x), g(x), h(x), t(x)
2. What domain does the x fall into?
3. Plug in the number for x.

EXAMPLE

$$f(x) = \begin{cases} x + 2, & \text{if } x < 3 \\ x + 7, & \text{if } x \geq 3 \end{cases}$$

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Absolute Values

STEP 1: ISOLATE

Get the absolute value by itself
Example: $|3k| = 21$

STEP 2: REWRITE

Rewrite the absolute value equal to positive and negative.

$3k = 21$ or $3k = -21$

STEP 3: SOLVE

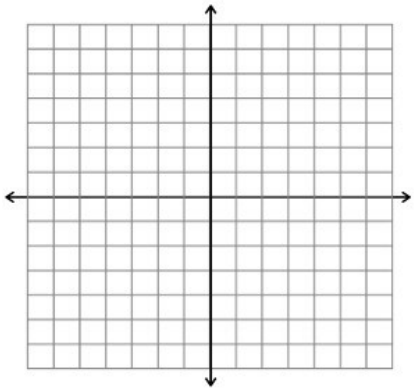
Solve the variable.
You should have 2 answers.
$k = 7$ or $k = -7$

Solve:

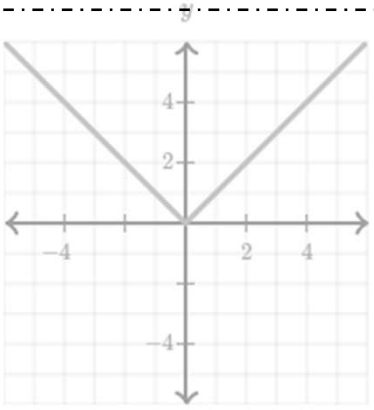
$-3|x - 4| = 18$

Graph:

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



EQUATION



$y = |x|$

SHIFTS

Inside = Opposite

$y = |x - a|$ → right

$y = |x + a|$ ← left

Same = Outside

$y = |x| + a$ ↑ up

$y = |x| - a$ ↓ down

$y = a|x|$

$a > 1$ skinnier

$a < 1$ wider

$y = -|x|$ flips