Trig 3.3
Graph polynomial, absolute value, and radical inequalities
Solve absolute value inequalities
Determine solutions to inequalities

Quiz 3.1-3.2

open $<$ $>$ - - -
closed $\leq$ $\geq$ ———

families of functions/ parent graphs (3.2)

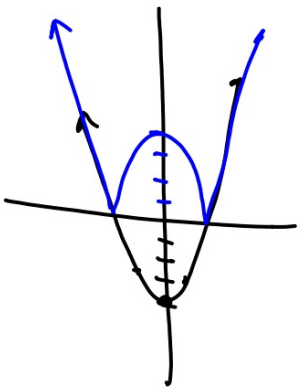
test point

inequality

boundary

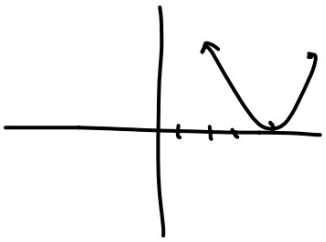
test point

d) $f(x) = x^2$

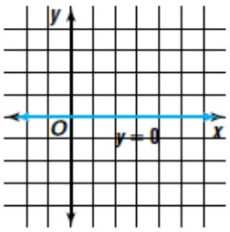


$y = |x^2 - 4|$

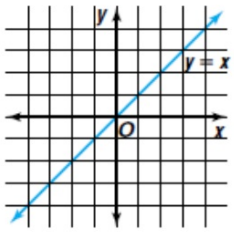
$y = |x|$



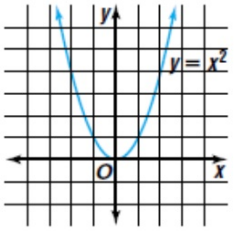
constant function

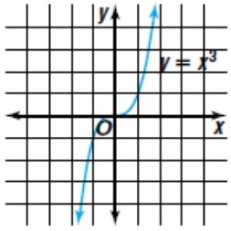


identity function

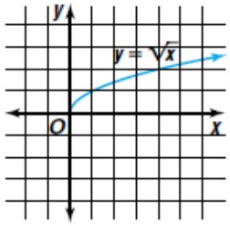


polynomial functions

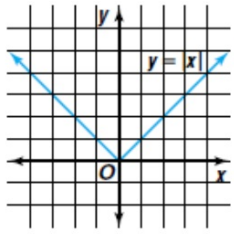




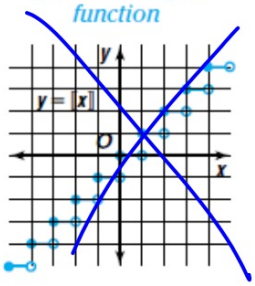
square root function



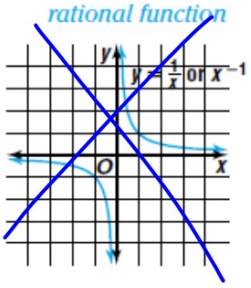
absolute value function



greatest integer function



rational function



< > for continuous functions only

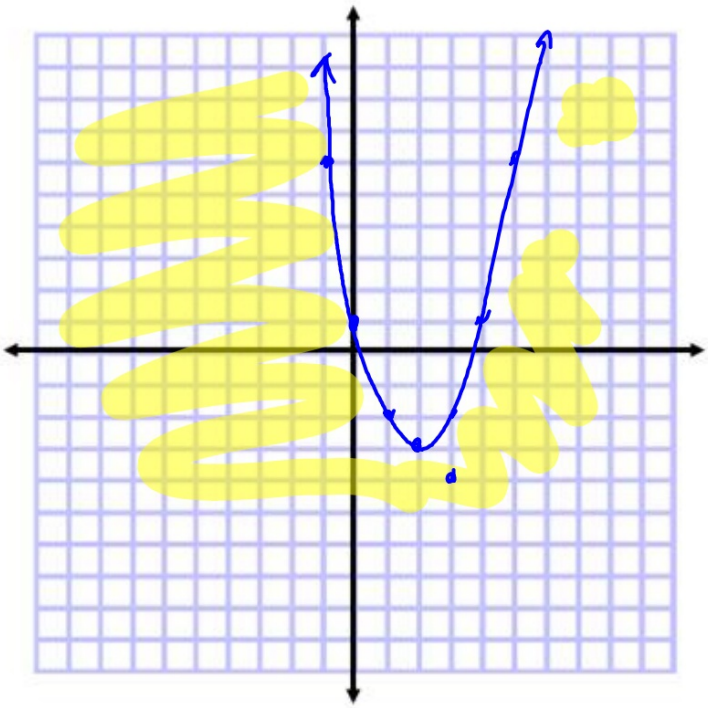
1 Determine whether $(3, -4)$, $(4, 7)$, $(1, 1)$, and $(-1, 6)$ are solutions for the inequality $y \leq (x - 2)^2 - 3$.

$(0, 0)$ $0 \leq (-2)^2 - 3$

$0 \leq 4 - 3$

$0 \leq 1$

algebraically or graphically?



Solve by graphing
Solve using algebra

algebraically/graphically ??

Determine whether the ordered pair is a solution for the given inequality. Write *yes* or *no*.

5 $y \geq -5x^4 + 7x^3 + 8$ $(-1, -3)$

$-3 \geq -5 \cdot 1 + 7 \cdot -1 + 8$

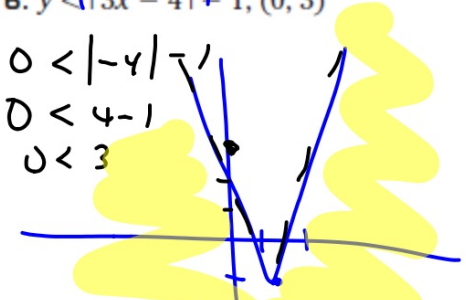
$-3 \geq -5 + -7 + 8$

$-3 \geq -4$

T

6. $y < |3x - 4| - 1$, $(0, 3)$

$|3(x-4)| - 1$



$0 < |-4| - 1$

$0 < 4 - 1$

$0 < 3$

$3 < |0-4| - 1$

$3 < 4 - 1$

$3 < 3$

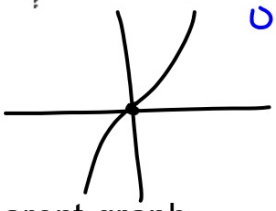
F

$0 \geq (-4)^3 - 2$

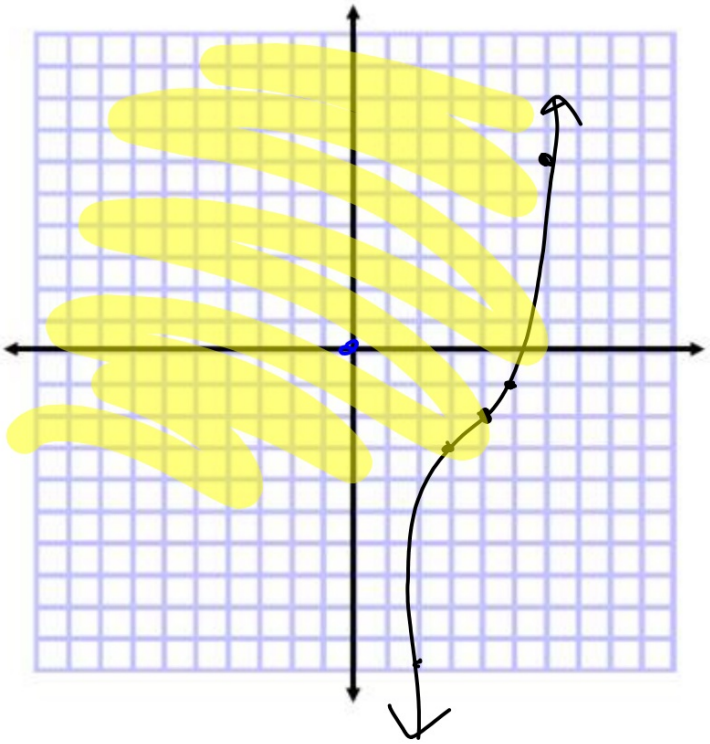
$0 \geq -64 - 2$

2 Graph $y \geq (x - 4)^3 - 2$.

$0 \geq -66$

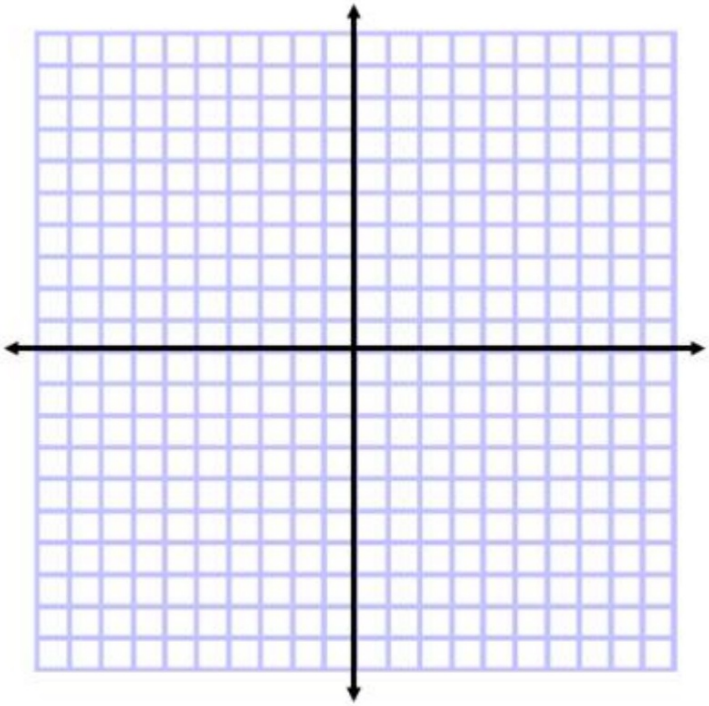


parent graph
transformation
test point
boundary open or closed?



parent graph
transformation
test point
boundary open or closed?

3 Graph $y > 3 - |x + 2|$.

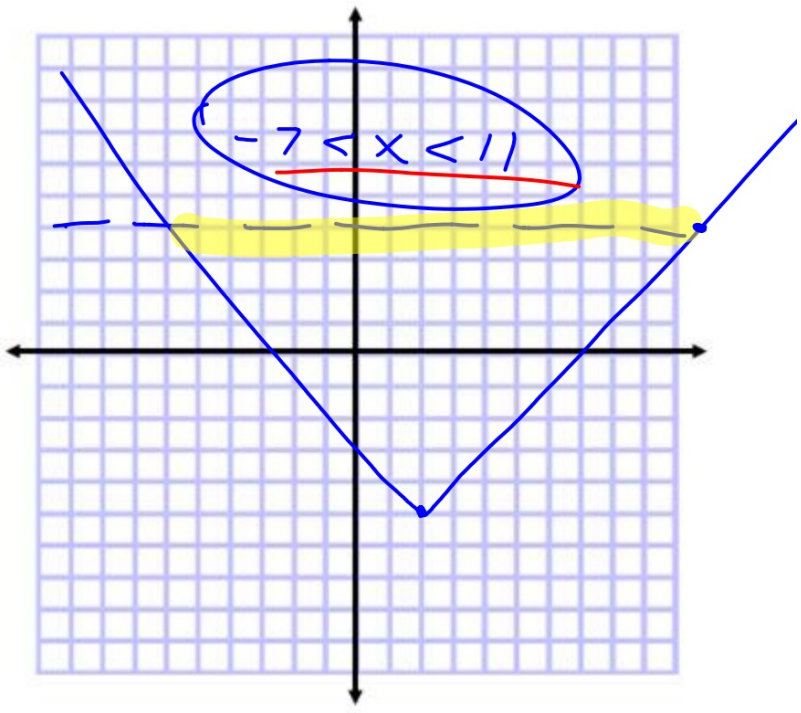


How is this problem different?
Where is one graph above/below the other?

4 Solve $|x - 2| - 5 < 4$.

lower

Desmos
y= $|x-2|-5$
y= 4
Solve by graphing
What x-values are involved? (estir



Solve using a graph, solve using algebra
Methods are different, but answers will be the same.

4 Solve $|x - 2| - 5 < 4$.

$|-12|-5<4$

$12-5<4$

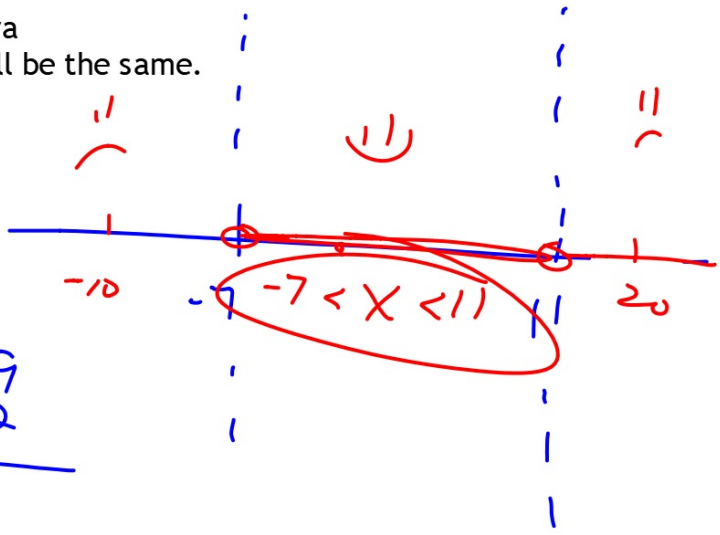
$|x-2|<4$

$x-2=-9$ $\quad +2 \quad +2$

$x=-7$

$x-2=9$ $\quad +2 \quad +2$

$x=11$



Graph each inequality.

7. $y \leq (x-1)^3$

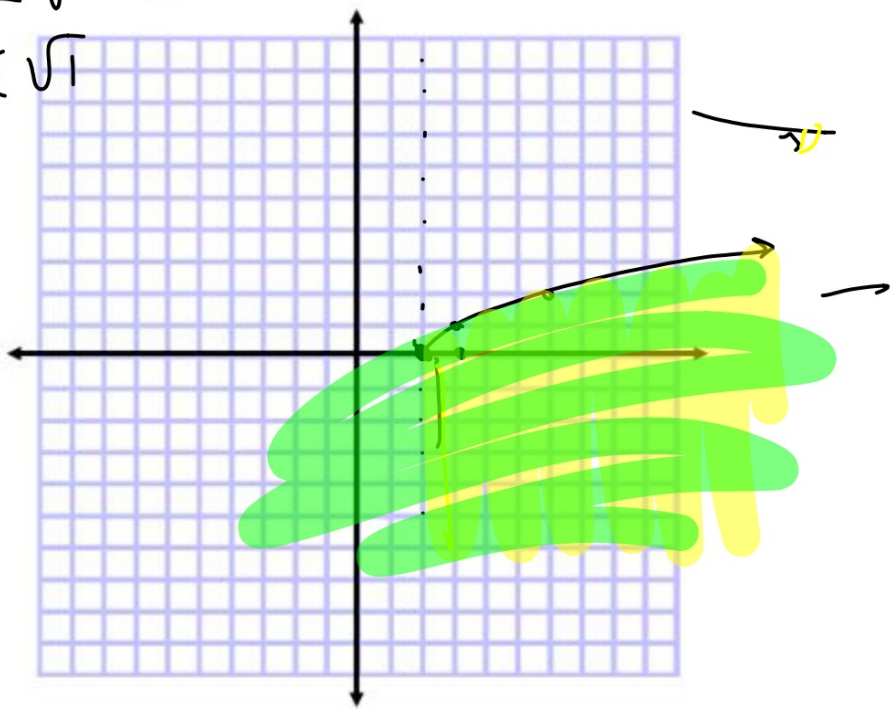
8. $y \leq 2(x-3)^2$

9. $y > -|x-4|+2$

$y \leq \sqrt{x-2}$

$0 \leq \sqrt{3-2}$

$0 \leq \sqrt{1}$



What is the difference between...