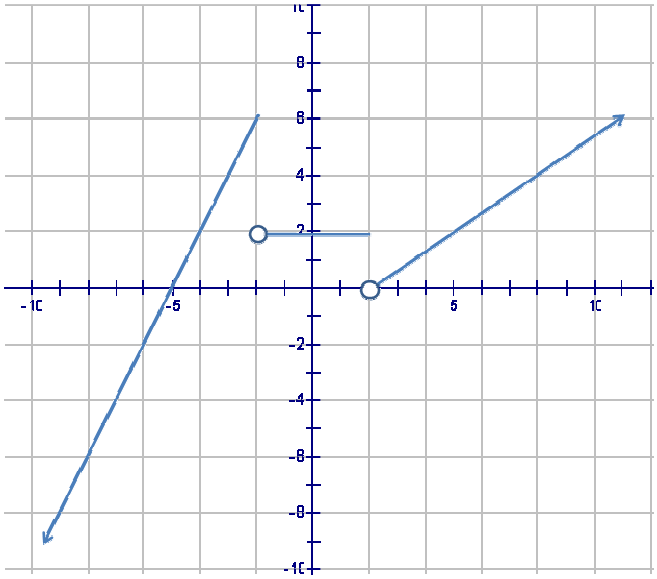
1.) Evaluate and graph the piecewise function at the given values of x.

Warm Up

$$f(x)=\begin{cases}2x+2 & if \quad x<0\\ -x^2 & if \quad x\geq 0\end{cases}$$

x=-2, 1, 3

8.)Find the piecewise equation!



Examples

Are you getting it???

Let's Go over the worksheet for homework!

Algebra 2 Trig Daily Learning Target Quiz
Piecewise Functions

1.) Evaluate

$$g(x)=\begin{cases}4x-3, if\ x>3\\ 5x+2, if\ x\le 3\end{cases}$$

a) g(-2)

b) g(5)

2.) Graph.

$$f(x)=\begin{cases}x+1, & x\ge 2\\ -2x, & x<2\end{cases}$$

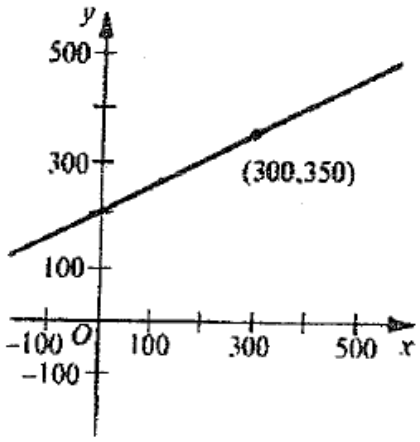
3.) Graph.

$$f(x)=\begin{cases}1, & -3\le x<0\\ 4, & 0\le x<3\\ 7, & 3\le x<6\end{cases}$$

4.) Write the equation of the graph.

ACT DLT EXTRA CREDIT DAY 6

Which of the following is an equation of the line that is graphed in the t\standard (x,y) coordinate plane below?



F. $y = 2x - 400$
G. $y = 50x + 200$
H. $y = 2x = 200$
J. $y = \frac{1}{2}x + 200$
K. $y = x + 200$

*Grab DLT + Graph paper (in front of tray)

*Extra Practice-if needed

(15 minutes)

Math Bingo

Two Truths and a Lie

Basics

Evaluate.

1.) $|3|$ 3

2.) $|-7|$ 7

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

Solve.

4.) $|x| = 6$ $x=6$ $x=-6$

5.) $|x| = -5$ Not possible

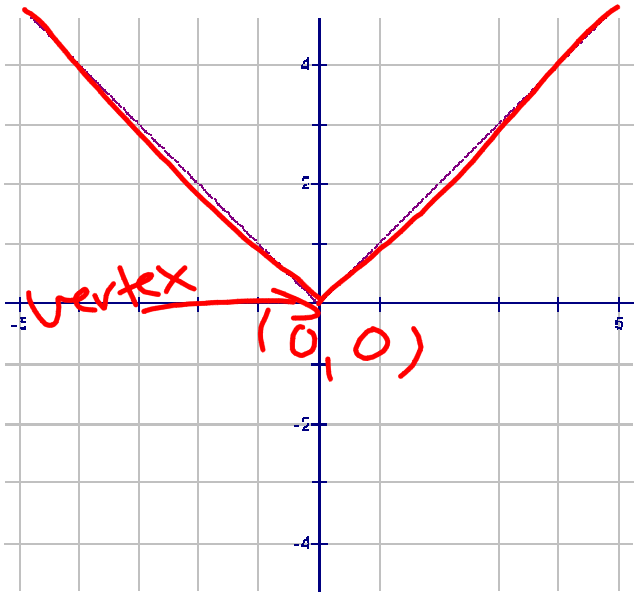
6.) $|x-2| = 8$ $x-2=8$ $x=10$ $x-2=-8$ $x=-6$

I have a handout for you...

But first...

$$f(x) = |x|$$

$y = a|x-h|+k$



Remember when I talked about this.....

modified
point-slope form

$y=m(x-h)+k$

(h, k) is a point
on the line

Use to help fill out ws.

https://www.desmos.com/calculator/rarxiatpip

When finished with ws, work on activity below.

https://teacher.desmos.com/activitybuilder/custom/562df5d99236025b1c07a64f

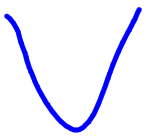
https://teacher.desmos.com/activitybuilder/custom/5a8639fef395b2545e01882a

So let's go over this!

https://www.desmos.com/calculator

$$f(x) = a|x - h| + k$$

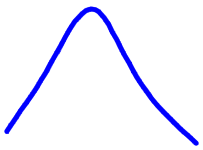
When a is positive:



As $|a|$ increases:

Skinnier

When a is negative:



As $|a|$ decreases:

Wider

$$f(x) = a|x - h| + k$$

When k increases:

+4 up 4

When k decreases:

−4 down 4

(0, k) is which point?

$$f(x) = a|x - h| + k$$

$|x - 2|$

When h is positive:

Right 2

When h is negative:

$|x + 2|$ left 2

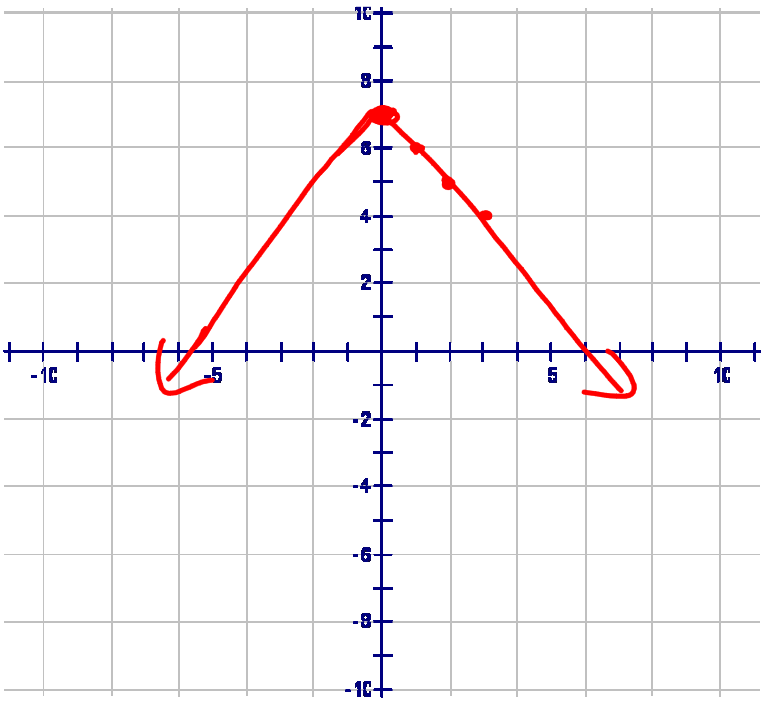
(h, k) is which point?

Vertex

$y = a|x-h|+k$

$f(x) = -|x| + 7$

Graph these two functions.



#11

Vertex $(0, 7)$

$a = -1$

D: $(-\infty, \infty)$

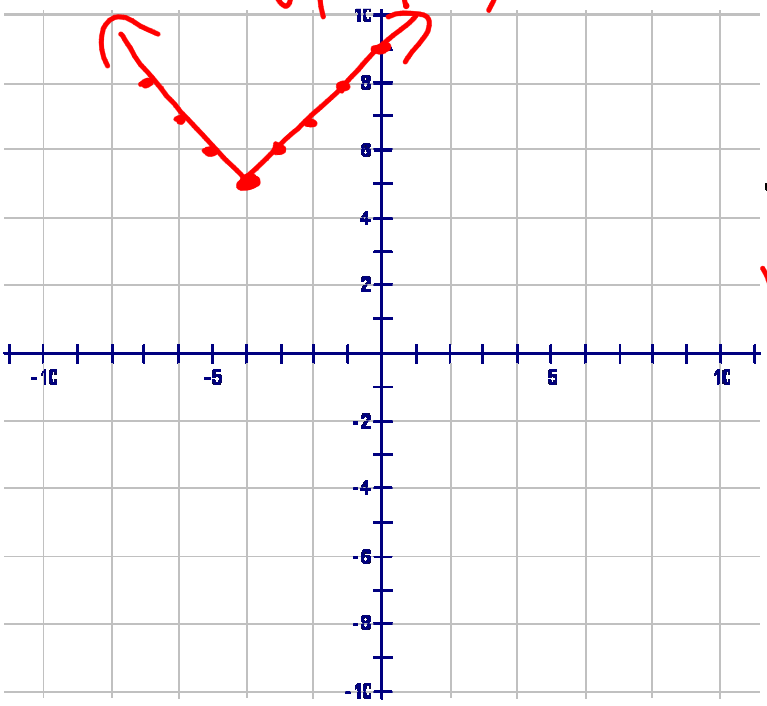
R: $(-\infty, 7)$

#12

$f(x) = |x+4| + 5$

$y = a|x-h| + k$

Graph these two functions.



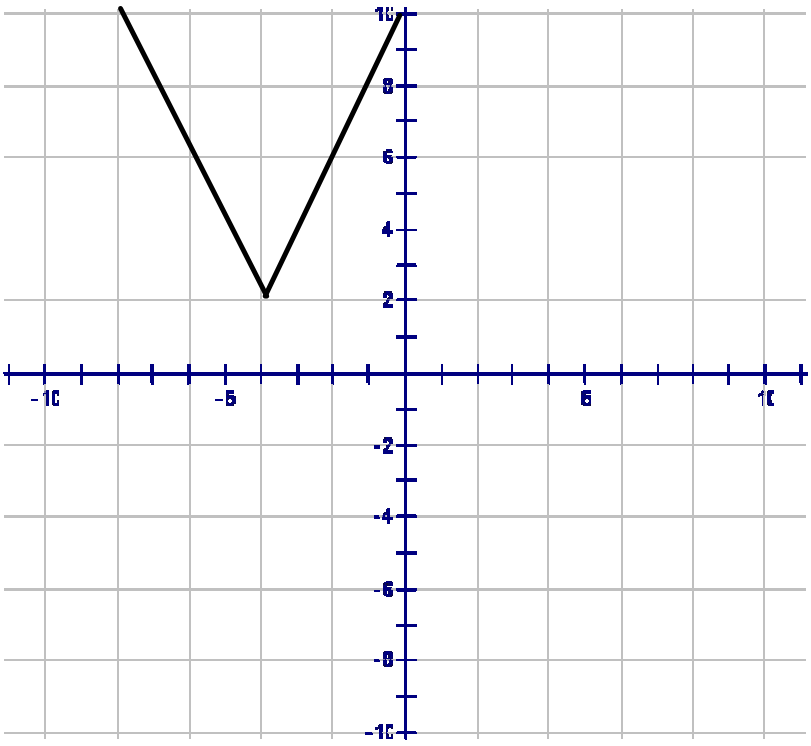
$f(x) = -|x+4|+5$

D: $(-\infty, \infty)$

R: $(5, \infty)$

$f(x) = |x+4|+5$

V$(-4, 5)$ #12

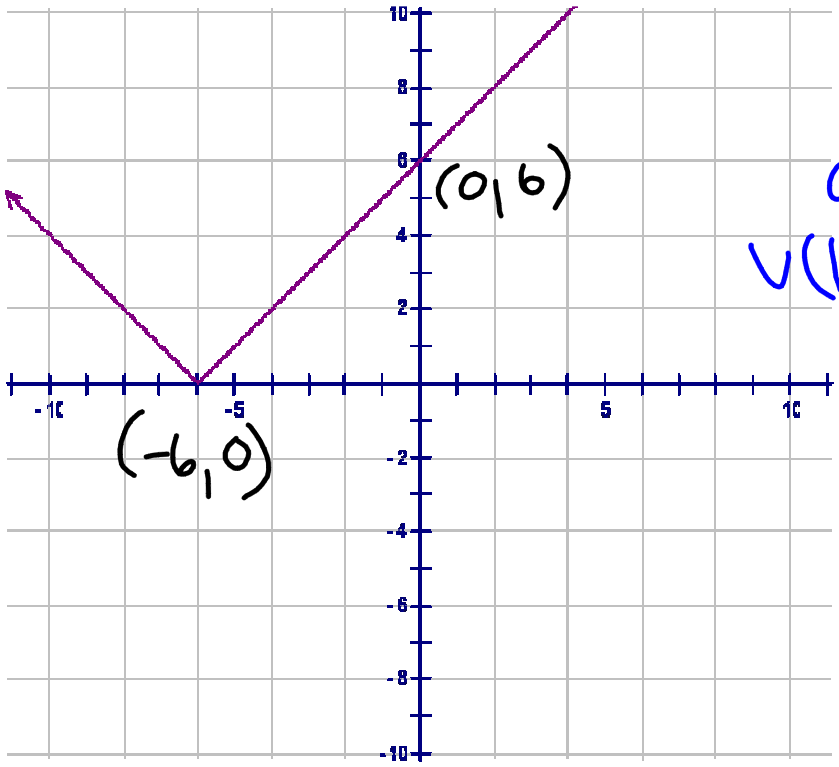


$y = a|x-h|+k$

$V\ (-4, 2)$

$a = 2$

$y = 2|x+4|+2$



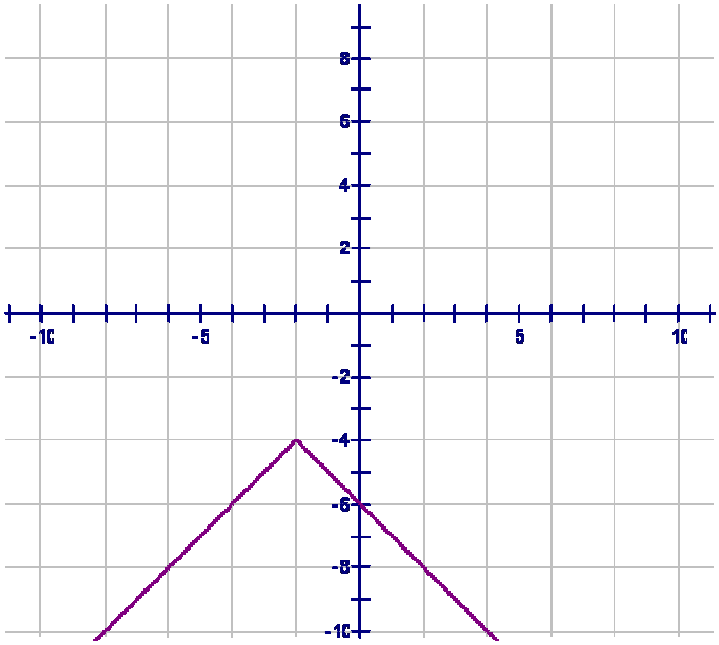
#15

$a = 1$

$V(h,k)$ $(-6,0)$

$y = a|x-h|+k$

$y = 1|x+6|$

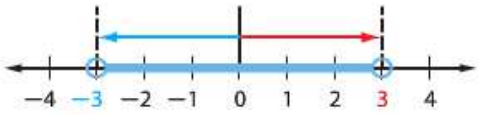


#17

Absolute Value Grids

Solving Absolute Value inequalities

1 Absolute Value Inequalities (<) The inequality $|x| < 3$ means that the distance between x and 0 is less than 3.



So, $x > -3$ and $x < 3$. The solution set is $\{x \mid -3 < x < 3\}$.

When solving absolute value inequalities, there are two cases to consider.

Case 1 The expression inside the absolute value symbols is nonnegative.

Case 2 The expression inside the absolute value symbols is negative.

The solution is the intersection of the solutions of these two cases.

Solving Absolute Value inequalities

Ex: $|2x+3| < 6$

$2x+3 < 6$

$-3 \quad -3$

$\frac{2x}{2} < \frac{3}{2}$

$x < \frac{3}{2}$

$2x+3 > -6$

$-3 \quad -3$

$\frac{2x}{2} > \frac{-9}{2}$

$x > -\frac{9}{2}$

Solving Absolute Value inequalities

Ex: $|x-1| < -6$

Not possible

Solving Absolute Value inequalities

TOYO

Ex1: $|n-8| \leq 2$

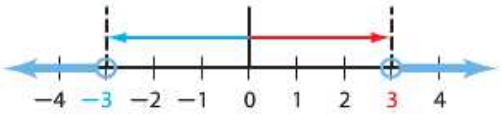
Ex 2: $|2c-5| < -3$

$n-8 \leq 2$ $n-8 \geq -2$ Not possible

$n \leq 10$ $n \geq 6$

Solving Absolute Value inequalities

2 Absolute Value Inequalities (>) The inequality $|x| > 3$ means that the distance between x and 0 is greater than 3.



So, $x < -3$ or $x > 3$. The solution set is $\{x \mid x < -3 \text{ or } x > 3\}$.

As in the previous example, we must consider both cases.

Case 1 The expression inside the absolute value symbols is nonnegative.

Case 2 The expression inside the absolute value symbols is negative.

Ex: $|3n + 6| \geq 12$

$3n + 6 \geq 12$

$-6 \quad -6$

$\frac{3n}{3} \geq \frac{6}{3}$

$n \geq 2$

$3n + 6 \leq -12$

$-6 \quad -6$

$\frac{3n}{3} \leq \frac{-18}{3}$

$n \leq -6$

Solving Absolute Value inequalities

TOYO

Guided Practice

Solve each inequality. Then graph the solution set. **3A–3B. See margin.**

3A. $|2k + 1| > 7$

3B. $|r - 6| \geq -5$

And the homework:
1.)Day 6 on the Unit Plan

Test on 9-5 and 9-6!

*Please come see me if you need help!