Daily Quiz

Solve the following graphically.

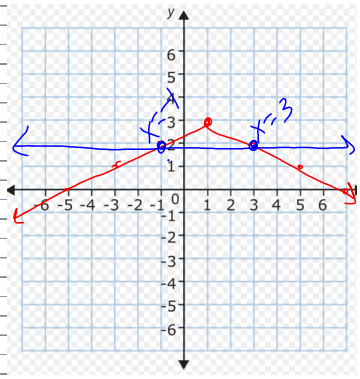
$-\frac{1}{2}|x-1|+3=2$

$a=\frac{-1}{2}$ $y=2$

$V(1,3)$

The Soln. is

$x=-1$ & $x=3$



M1: L 2.2 Solving Absolute Value Equations

Objective: We will be able to solve absolute value equations by using properties of equality.

Vocabulary

Disjunction- a mathematical statement created by a connecting two other statements with the word "or".

3 Example

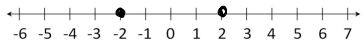
Solve each absolute value equation algebraically. Graph the solution on a number line.

$3|x+2|=8$

$-2 \quad -2$

$\frac{3|x|}{3}=\frac{6}{3}$

$|x|=2$



As is: $x=2$

opp: $+1\cdot|x|=2\cdot-1$

$x=-2$

4 Example

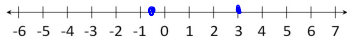
Solve each absolute value equation algebraically. Graph the solution on a number line.

$3|4x-5|-2=19$

$+2 \quad +2$

$\frac{3|4x-5|}{3}=\frac{21}{3}$

$|4x-5|=7$



As is: $4x-5=7$

$+5 \quad +5$

$\frac{4x}{4}=\frac{12}{4}$

$x=3$

opp: $-(4x-5)=7$

$-4x+5=7$

$-5 \quad -5$

$\frac{-4x}{-4}=\frac{2}{-4}$

$x=-\frac{1}{2}$

5 Example

Isolate the absolute value expression in each equation to determine if the equation can be solved. If so, finish the solution. If not, write "no solution."

$-5|x+1|+2=12$

$-2 \quad -2$

$\frac{-5|x+1|}{-5}=\frac{10}{-5}$

$|x+1|=-2$

No soln. b/c it equal a negative #.

$|x|=+\#$

2 soln.

$|x|=-\#$

NO soln.

$|x|=0$

1 soln.

6 Example

Isolate the absolute value expression in each equation to determine if the equation can be solved. If so, finish the solution. If not, write "no solution."

$\frac{3}{5}|2x-4|-3=-3$

$+3 \quad +3$

$\frac{5}{3}\cdot\frac{3}{5}|2x-4|=0\cdot\frac{5}{3}$

$|2x-4|=0$

$2x-4=0$

$+4 \quad +4$

$2x=4$

$x=2$