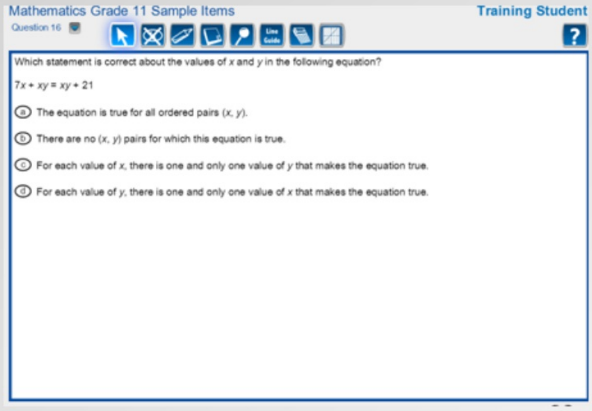
Algebra 2

- Warm Up
- Check HW
- Notes on 1.5 Absolute Value & Inequalities
- Classwork/Homework

OBJECTIVE

Students will be able to solve absolute value equations and inequalities.

Warm Up: SAT Question



The absolute value of a number is its distance from zero on a number line and the distance is a nonnegative number.

An absolute value equation such as $|2y - 4| = 12$ has two solutions, since the expression $2y - 4$ can equal 12 or -12.

Let's solve $|2y - 4| = 12$

*Manipulate the equation to get the absolute value bars by themselves.

*Split into two equations and solve.

*Check your answer for extraneous solutions.

An extraneous solution is a solution of an equation derived from an original equation that is not a solution of the original equation.

Solving Multi-Step Absolute Value Equations

Solve $3|4w - 1| - 5 = 10.$

*Manipulate the equation to get the absolute value bars by themselves.

*Split into two equations and solve.

*Check your answer for extraneous solutions.

What an extraneous solution will look like...

Solve $|2x + 5| = 3x + 4.$

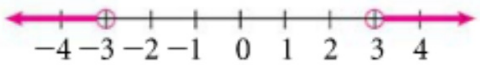
*Manipulate the equation to get the absolute value bars by themselves.

*Split into two equations and solve.

*Check your answer for extraneous solutions.

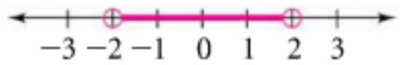
Absolute Value Inequalities...

If $|x| > 3$, then x is more than 3 units from 0 on the number line.



This is also the graph of $x < -3$ or $x > 3$. So the absolute value inequality $|x| > 3$ can be rewritten as the compound inequality $x < -3$ or $x > 3$.

If $|x| < 2$, then x is less than 2 units from 0 on the number line.



This is also the graph of $-2 < x < 2$. So the absolute value inequality $|x| < 2$ can be written as the compound inequality $-2 < x < 2$.

Write $|x| > 5$ as a compound inequality.

Solve $|3x + 6| \geq 12$. Graph the solution.

*Manipulate the equation to get the absolute value bars by themselves.

*Split into two inequalities and solve.

Solve $3|2x + 6| - 9 < 15$. Graph the solution.

*Manipulate the equation to get the absolute value bars by themselves.

*Split into two inequalities and solve.

(flip sign on second inequality)

Classwork

Page 36 #4 - 56(every 4, skip #28, 32), 57,

If it says graph, then graph.

Homework

Quiz Review. Quiz on Monday 1.2 - 1.5