

Welcome to class!

1. Put yesterday's homework on your desk
2. Write a short paragraph describing the difference between the word "**and**" and the word "**or**"
3. Define the word "absolute value"

Homework Check

Worksheet odds only



Announcements

- Test corrections due Wednesday
- Unit 3 Test will be on Friday, October 12th



Solving Absolute Value Equations and Inequalities

Chapter 3.7
10/5/2018



Recall...

The absolute value is the distance a number is away from zero on a number line.

We know that $|4| = 4$ and we know that $|-4| = 4$

So, to solve $|x| = 4$ for x , there are two possibilities for x . x could equal 4, or x could equal -4.

Try these:

$$|x| = 6$$

$$|a| = 10$$

$$|c| = -5$$

Remember that the absolute value is always

_____.

Today we will work with absolute value equations such as

$$|ax + b| = c.$$

To solve absolute value equations...

1. Isolate the absolute value
2. Set the absolute value and its opposite equal to c
3. Use equality properties to solve
4. Check your answer with substitution

Try these...

1. $|x-2| = 5$

2. $|2x-7| - 5 = 4$

3. $|6-4t| + 5 = 0$

4. $-3|2n+5| = -9$

Now let's think about absolute value inequalities... these require a bit more from us than an absolute value equation

Greater Than - if the inequality includes $>$ or \geq it is an “or” statement

$$|ax+b| > c \rightarrow ax+b > c \text{ OR } -(ax+b) > c$$

The answer comes from two statements

Less Than - if the inequality includes $<$ or \leq it is an “and” statement

$$|ax+b| < c \rightarrow ax+b < c \text{ AND } -(ax+b) < c$$

The answer comes from one statement

Remember greatOR than, less thAND

To solve absolute value inequalities...

1. Isolate the absolute value
2. Determine what type of inequality symbol you have
3. Write two new statements based on the inequality
4. Solve using properties
5. Write your answer in set builder and interval notation
(we will learn this later!)

Try these and graph your answer...

1. $|x| > 5$

2. $|x| < 6$

3. $|x-2| \leq 5$

4. $|x-3| > 12$

5. $|x+1| - 3 > 2$

Create a Poster

Homework

1. Read Chapter 3.7 in your textbook. You may want to add something to your notes today based on what you read.
2. Page 211 # 28-31, 43-46, 59