

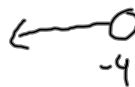
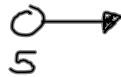
Do Now:

Name: _____ Date: _____

Write in words and Graph the following

$x > 5$ x is greater than 5

$x < -4$ x is less than -4



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HW ABS VAL equations?

(4) $|x-2| = 2x-3$

Case 1
 $x-2 = 2x-3$
 $-2 = 1x-3$
 $1 = x$

Check:
 $|1-2| = 2(1)-3$
 $|-1| = -1$
 $1 \neq -1$

Case 2
 $x-2 = -2x+3$
 $3x-2 = 3$
 $3x = 5$

$x = \frac{5}{3}$

Check $|\frac{5}{3}-2| = 2(\frac{5}{3})-3$
 $|\frac{5}{3}-\frac{6}{3}| = \frac{10}{3}-\frac{9}{3}$
 $|\frac{1}{3}| = \frac{1}{3}$ ✓



$\{\frac{5}{3}\}$

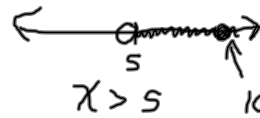
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2 Review of Graphing and Solving Inequalities 2012 notes.notebook

When **graphing inequalities** questions to ask ourselves:

- Do we use open or closed circles?
- Which way do we shade?

$$\geq \leq$$



Solving Inequalities:

Follow the same rules for solving equations but when **multiplying or dividing by a negative number**, switch the inequality symbol.

Solve and Graph

<p>1. $x+3 > 9$ $\underline{-3 \quad -3}$ $x > 6$</p>	<p>2. $-6x > 30$ $\underline{-6 \quad -6}$ $x < -5$</p>
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Inequality word problems:

1. You need at least \$25 more to buy a stereo. Write an inequality that describes how much you need. Graph the inequality.

$$x \geq 25$$

2. Martha is 15 years old. Let A represent the age of Martha's younger brother. Write and graph the inequality.

Martha - 15
 A Brother

$$15 > A$$

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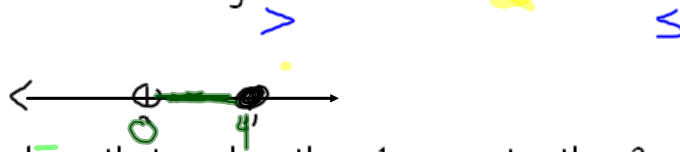
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A **Compound Inequality** consists of 2 inequalities connected by **AND** or **OR**.

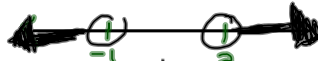
Write an inequality that represents the set of numbers and graph.

- a. All real numbers that are greater than zero and less than or equal to 4.

R



- b. All real numbers that are less than -1 or greater than 2.



- c. All real numbers greater than or equal to -2 and less than 3.

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SOLVING A COMPOUND INEQUALITY WITH "AND"

Solve $-2 \leq 3x - 8 \leq 10$

→ Isolate the variable

$$-2 \leq 3x - 8 \leq 10$$

$$-2 \leq 3x - 8$$

$$6 \leq 3x$$

$$2 \leq x$$

$$3x - 8 \leq 10$$

$$3x \leq 18$$

$$x \leq 6$$



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SOLVING COMPOUND INEQUALITIES WITH "OR"

Solve: $3x+1 < 4$ or $2x-5 > 7$

→ The solution is either of the parts. Solve each one separately and then graph.

$$3x+1 < 4 \quad \text{or} \quad 2x-5 > 7$$

$$3x < 3 \quad 2x > 12$$

$$x < 1 \quad x > 6$$



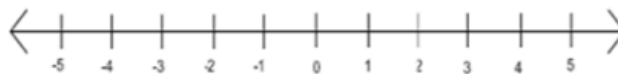
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Review of Graphing and Solving Inequalities

Rules for Solving Inequalities

1. Follow the rules for solving equations
2. Exception: When multiplying and dividing by a negative number, flip the inequality symbol.

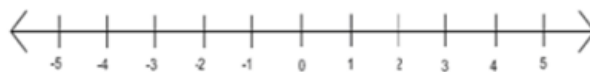
$$3x+8 < 5$$



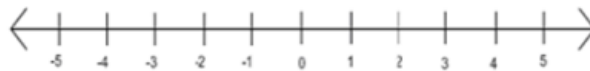
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$$2x - 3 \geq 1$$



$$4x < 5x - 2$$



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Conjunction (AND)

1) $1 < x < 5$
 $(1 < x) \wedge (x < 5)$



2) $-4 \leq x < 2$



Disjunction (OR)

3) $(x \leq 2) \vee (4 < x)$



4) $(x < -1) \vee (x \geq 0)$



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Graph/Solve:

1. $-3 \leq x \leq 0$



2. $(x > -2) \wedge (x \leq 4)$



3. $(x > 2) \vee (x \leq -4)$



4. $(x > -2) \vee (x \geq -1)$



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SOLVING A COMPOUND INEQUALITY WITH "AND"

Solve $-2 \leq 3x-8 \leq 10$

→ Isolate the variable

$$-2 \leq 3x-8 \leq 10$$

$$-5 \leq 2x+3 < 7$$

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SOLVING COMPOUND INEQUALITIES WITH "OR"

Solve: $3x+1 < 4$ or $2x-5 > 7$

→ The solution is either of the parts. Solve each one separately and then graph.

$$3x+1 < 4 \quad \text{or} \quad 2x-5 > 7$$

$$6x-5 < 7 \quad \text{or} \quad 8x+1 > 25$$

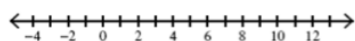
Reversing Both Symbols:

Solve: $-2 < -2-x < 1$

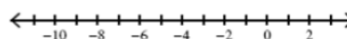
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Solve and Graph each compound inequality

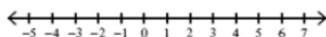
1) $n - 10 \geq 0$ or $-5 + n < -6$



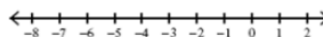
2) $\frac{v}{2} \leq 0$ and $v - 2 > -10$



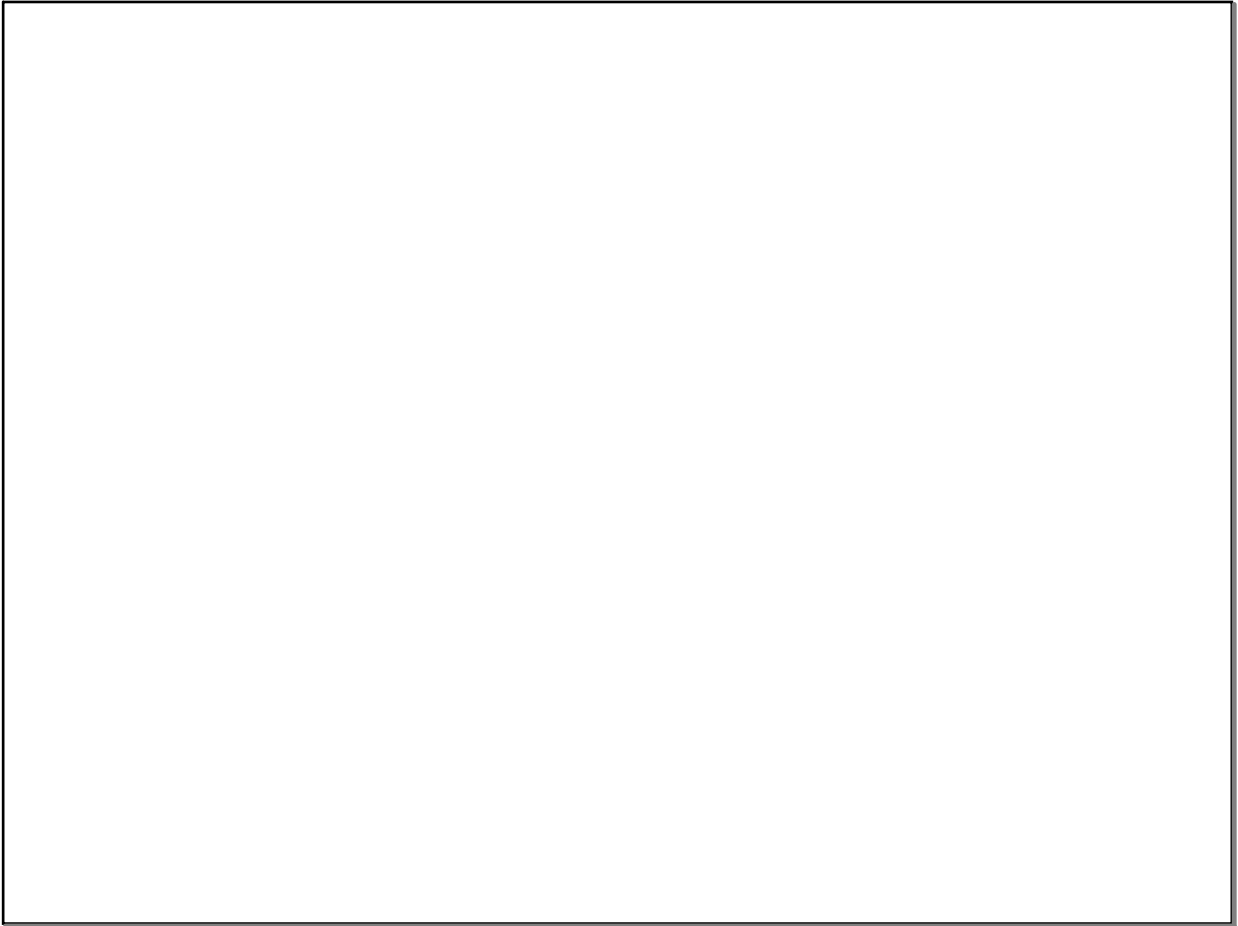
3) $x + 1 \geq 3$ or $6 + x < 4$



4) $7 + m \geq 2$ and $m + 1 < 2$



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