FEBRUARY 26, 2018

UNIT 5: LINEAR EQUATIONS AND INEQUALITIES

SECTION 6.5: SOLVING LINEAR INEQUALITIES BY USING MULTIPLICATION & DIVISION

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MATH 9

WHAT'S THE POINT OF TODAY'S LESSON?

We will continue working on the Math 9 Specific Curriculum Outcome (SCO) "Patterns and Relations 4" OR "PR4" which states:

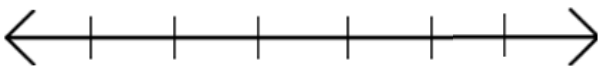
"Explain and illustrate strategies to solve single variable linear inequalities with rational coefficients within a problem-solving context."

What does THAT mean???

SCO PR4 means <u>MORE</u> ALGEBRA, but without the equals sign!!!

Warm Up

Solve and graph: $\frac{1}{2}x + 3 \leq \frac{2}{3}x - 4$



Homework Questions?

(page 298, #7, #8 and #9;

page 299, #12 and #14)

Here's an inequality:

2 > -8

(Multiply both sides by -1.)

2 (-1) > -8 (-1)

-2 > 8

Is the new inequality still true?

NO!!!

(-2 is LESS than 8.)

Here's another inequality:

7 > -4

(Divide both sides by -1.)

$$\frac{7}{-1} > \frac{-4}{-1}$$

-7 > 4

Is the new inequality still true?

NO!!!

(-7 is LESS than 4.)

When you multiply or divide by a negative the inequality sign changes direction.

When each side of an inequality is multiplied or divided by the same negative number, the inequality sign must be reversed for the inequality to remain true.

TO SOLVE AN INEQUALITY, we use the same strategy as for solving an equation; however, when we multiply or divide by a negative number, we REVERSE the inequality sign.

Solve the EQUATION:

$$\frac{-4x}{-4} = \frac{24}{-4}$$

$$x = -6$$

The equation only has ONE solution ($x = -6$).

Solve the INEQUALITY:

$$\frac{-4x}{-4} < \frac{24}{-4}$$

$$x > -6$$

The inequality has an INFINITE number of solutions ($x > -6$).

i) **Solve** the inequality: $-5x - 4 \leq 6$

ii) **Verify** the solution.

iii) **Graph** the solution.

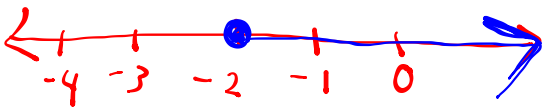
$\frac{-5x}{-5} \leq \frac{10}{-5}$

$x \geq -2$

ii)

LS	RS
$-5x-4$	6
$-5(-2)-4$	
$10-4$	
6	LS=RS ∴ x=-2

iii)



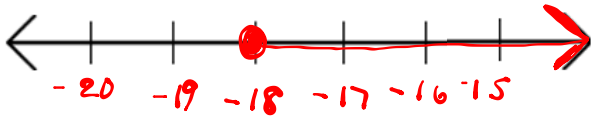
Solve and graph:

$$8 \leq \frac{2}{-3}x - 4$$

$-24 \leq 2x + 12$

$\frac{-36}{2} \leq \frac{2x}{2}$

$-18 \leq x \quad x \geq -18$



Worksheet

① $x \neq -2$

⑧ =

⑨ $x > 5$

Page 2.

① $3 > y$ $\boxed{y < 3}$

CONCEPT REINFORCEMENT:

***MMS9*:**
Page 305: #3, #6 to #12
Page 306: #16 to #18
Page 309: #16

Be sure to check your answers in the back of the book as part of your homework. The answers for this section begin on page 516.

TEST PREPARATION (Friday, Feb. 28):

***MMS9*:**

Page 307:	**Study Guide**
Pages 308/9:	**Review Questions (I especially "like" #4, #7, #8, #11, #12, #15 and #16)**
Page 310:	**Practice Test (I especially "like" #2 to #5)**
Worksheets:	**Pages 179, 181 and 182**