Bellwork: (ON the DAILY SHEET)

A) Solve for x

\[ 3x + 2y = 5 \]

\[ \frac{-2y}{3} = \frac{5 - 2y}{3} \]

\[ x = \frac{5 - 2y}{3} \]

B) Simplify:

A) \( 4x^2 \cdot 5x^3 \)

B) \( 20x^{10} \)

C) \( 9x^{21} \)

D) \( 20x^{21} \)


1.3 Inequalities

Today I will be able to solve and graph inequalities and compound inequalities

Rules for solving inequalities:

Solve inequalities the same way as solving equations.

If the variable is not on the left side, flip everything.

If you multiply or divide by a negative, flip the inequality

Example 1: Find and graph the solution.

\[ -3(2x - 5) + 1 \geq 4 \]

\[ -6x + 15 + 1 \geq 4 \]

\[ -6x + 16 \geq 4 \]

\[ x \leq -2 \]

Graph each inequality on a number line:

\( x > 5 \)

\( x \leq 6 \)

\( -5 -4 -3 -2 -1 \)

The solutions are:

\[ x \leq -6 \]

\[ -7 -6 -5 \]
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### Example 1

1. \[ 18 > -3(6 - x) \]
   
   
   \[
   \begin{align*}
   18 & > -3(6 - x) \\
   \frac{18}{-3} & > \frac{-3(6 - x)}{-3} \\
   -6 & < 6 - x \\
   -6 + 6 & < 6 - x + 6 \\
   0 & < x \\
   \end{align*}
   \]
   
   So, \( x > 0 \).

### Example 2

2. \[ -6(1 + x) > -36 \]

### Example 3

3. \[ 7(-7n + 2) + n < 62 \]

### Example 4

4. \[ -4(a + 4) > -36 \]

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**Example 2 (Continued)**

The length of a rectangular yard is 30 meters. The perimeter is at most 80 meters. Describe the width of the yard.

If Sean makes $11 per hour at his job, how many hours does he need to work to make at least $300?
Example 3: Solve and graph each Compound inequality

- AND inequalities – the graph should look like
- OR inequalities – the graph should look like

Today I will be able to solve and graph inequalities and compound inequalities.

SUMMARY:

Today we learned about ____________________________________________________________________________

If I had to rate my understanding of today’s lesson I would give myself a _______ (1, 2, 3 or 4) because ________________________________________________________________________________.