Algebra 1 (CCSP)

Section 2.5: Solving Inequalities with Variables on Both Sides

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Objectives**: Solve Inequalities that contain variable terms on both sides.

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| **Main Idea** | **Notes** |
| **Exploration:** | 2.5 Exploration: Solving Inequalities with Variables on Both Sides |
| **Solving with Variables of Both Sides:** | Use the properties of inequality to collect all the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ terms on one  side and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ terms on the other.  Then solve using the same \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in the last section. |
| **Example 1: Solve and Graph the Inequalities** | Solve each inequality and graph its solution.   1. x < 3x + 8   **http://www.theschools.com/theschools/curriculum/Sample9/graphics/number-line.gif**   1. 6x – 1 ≤ 3.5x + 4   **http://www.theschools.com/theschools/curriculum/Sample9/graphics/number-line.gif** |
| **Example 2: Solving Inequalities Word Problem** | The Home Cleaning Company charges $312 to power-wash the siding of a house plus $12 for each window. Power Clean charges $36 per window, and this includes the power-washing the siding.  How many windows must a house have to make the total cost of the Home Cleaning Company less expensive than Power Clean? |
| **Simplifying Inequalities:** | You may need to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ one or both sides of the inequality before solving it.  Look for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and places to use the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. |
| **Example 3: Solve and Graph the Inequalities**  **Special Cases:** | Solve each inequality and graph its solution.   1. 2(x – 3) > 6 + 3x – 3   **http://www.theschools.com/theschools/curriculum/Sample9/graphics/number-line.gif**   1. 0.9y ≥ 0.4y – 0.5   **http://www.theschools.com/theschools/curriculum/Sample9/graphics/number-line.gif**  Some inequalities are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ no matter what you plug into the variable.  These inequalities have a solution of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.  Some inequalities are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ no matter what you plug into the variable.  These inequalities have \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. |
| **Example 4: Solve and Graph the Inequalities** | 1. 2x – 7 ≤ 5 + 2x   **http://www.theschools.com/theschools/curriculum/Sample9/graphics/number-line.gif**   1. 2(3y – 2) – 4 ≥ 3(2y + 7)   **http://www.theschools.com/theschools/curriculum/Sample9/graphics/number-line.gif** |
| **Exit Ticket:** | **Explain** how you would collect the variable terms to solve the inequality 5c – 4 > 8c + 2.  What is the solution?  ( Do this on a separate piece of paper. I will collect this for a grade) |
| **Classwork:** | Solving Inequalities with Variables on Both Sides |
| **Homework:** | 2.5 Additional Practice Problems Worksheet |