Linear Inequalities in One Variable

Student Activity

Name _____

Class _____

In these activities, you will use solution-preserving methods to solve inequalities. After completing the activities, discuss and/or present your findings to the rest of the class.

Activity 1 [Page 2.2]

1. What would you say to each of the following students?

   a. Milo: "You can subtract any number from both sides of an inequality, and the solution set for the new inequality will be the same as the solution set for the original inequality."

   b. Mai: "Multiplying both sides of an inequality by a negative number reversed the order of the inequality sign."

   c. Wu: "If you divide both sides of an inequality by the same number, the solution set for the new inequality will be the same as the solution set for the original inequality."

   d. Petra: "Because the product of two negatives is a positive, when you multiply or divide a set of negative numbers by a negative number, the resulting numbers are 'flipped' to the other side of the number line."

2. Use pages 1.7 and 2.2 of the TNS activity to help decide whether each of the following statements is true if $x < -7$. Describe what operation you could do on both sides of the inequality $x < -7$ to keep the solution set of the new inequality the same as the original solution set.

a. $x + 3 < -4$

b. $3x < -21$

c. $x + 3 < -4x - 2 < -9$

d. $-3x > 21$

e. $-3x < 21$

f. $-7 > x$

Activity 2 [Page 2.2]

1. Consider the inequality $7 - 2x \geq -5$. Find the solution set by

   a. finding the point of equality and testing a point on either side to determine the order of the inequality describing the solution.

   b. using a solution and/or order-preserving move on both sides of the inequality.

2. Latashia suggested a new strategy.

    a. She added 2*x* to both sides of the inequality. What was her result? Would the solution or order change? Why or why not?

    b. What do you think her next step could be?

    c. What is an advantage of Latashia's method?

2. Why is it important to look for efficient and even elegant solutions?