Algebra/Geometry Institute Summer 2003

Lesson Plan 3

Faculty Name: JOHN WILLIAMS, JR.
School: GREENVILLE WESTON HIGH
City: GREENVILLE, MS
Grade Level: 9th GRADE ALGEBRA 1

1   Teaching objective(s)
    E. Model and solve linear inequalities using properties of equality.

2   Instructional Activities

- Teacher will give a 5 question quiz to recap what was covered on solving simple inequalities.
- Students will be given an eight minute time limit to complete the quiz.
- Teacher will define compound inequality which is two simple inequalities joined with the conjunction "and" or "or".
- Teacher will work examples of the compound inequalities on the overhead projector as well as the board.   (Graphs of each inequality will be done after solving is complete.)
  (a) Ex 1. - 7 <3x + 2 < 8
  (b) Ex 2. 8 <3x -1 < 11
  (c) Ex 3. 2x > 7 or 3x < 7
  (d) Ex 4. -2 < 4x and 6x< 22
  (e) Ex 5. 3x - 4 < 11 or 2x + 5 > 5
  (f) Ex 6. 2x < 14 or -3x > 18
  (g) Ex 7. 12 > -3x and -2x > -12
  (h) Ex 8. -3 < x + 2 < 7

- Teacher will demonstrate solving the compound inequality by dividing it into two simple inequalities and then solving each one separately. Both solutions will be placed on the line graph.
- Students will work examples at the board upon completion at their seats.
- Students will be divided into groups of four and will work examples d-h.
- Students will participate in a fan -n- pick exercise. This exercise is borrowed from Kathy Kagan who is famous for the Kagan Learning Strategies. Teacher will create some flash cards that have compound inequalities in the form of words only. The students will be responsible for translating the sentences from word form to that of numbers. Each student will be responsible for a specific duty. The first person will shuffle the cards. The second person will do the translation from words to numerals. The third person will solve the inequality. The fourth person is responsible for graphing the problem. The cycle continues until each person has served each position at least three times.

3   Materials and Resources
timer
flash cards
overhead projector
Holt, Reinhart, and Winston 2001 Algebra 1
index cards
dry erase markers and board

4   Assessment

     Students will take a short quiz on simple inequalities at the beginning of class and take a quiz on compound inequalities on the all the exercises have been completed. Students will complete the even numbers on page 293 (#'s 6-36) for homework.

SIMPLE INEQUALITY QUIZ

Solve and graph each of the following .

1) -5 > b -1

2) f- 2.3 < -1.21

3) 2x - 3 > -x + 5

4) x - 8.6 < 5.3

5) x - .5 > -1

COMPOUND INEQUALITY QUIZ

Solve and graph each of the following. The graph must be correct in order to receive credit.

1) $-3 < 2a + 1 < 7$

2) $y - 1 < 3$ or $y - 1 > 7$

3) $-8 < -2x < 6$

4) $-6r < 18$ or $12 + 4r > 0$

5) $2x - 7 > -10$ and $2x - 7 < x - 5$

6) $x - 5 > 2$ or $5 - x > 2$

7) $-5 < -1 - 3x < 8$

8) $8x - 6 < 3x + 12$

9) $2(w + 2) - 3w > -1$

10) $2(18) + 2w < 45$

FLASH CARD PROBLEMS

1) Negative two less than a number and four greater than or equal to the same number

2) A number is greater than or equal to a negative one and that same number is less than seven

3) Five less than a number is greater than or equal to two or a number less than five is greater than or equal to two

4) A number is greater than a negative fourteen or a number is less than a negative eighteen

5) Negative two times a number is less than fourteen or three times a number is less than a negative twelve

6) Eight is less than three times a number minus one and eleven is greater than or equal to the same number

7) Eight less than a number is greater than or equal to five and seven is greater than eight less than a number

8) Two times a number is less than fourteen or three times a number is greater than or equal to eighteen

9) Two times a number is less than or equal to six or three times a number is greater than twelve

10) Negative four and three tenths is less than a number and six and nine tenths is greater than or equal to the same number

11) Three times a number from seven is greater than ten or three times a number from seven is less than or equal to a negative two

12) One less than two times a number is less than or equal to a negative five or eight less than a number is greater than or equal to five

13) One more than two times a number is less than or equal to thirteen or five less than a number is greater than or equal to a negative five

14) Negative seven less than a number and five greater than the same number

15) A number less than nine is less than or equal to two times a number from three