Lesson 7

Inequalities

Lesson

An inequality compares two expressions using:

    < less than   > greater than
    <= less than or equal to   >= greater than or equal to

Solving inequalities works just like solving equations, with one important rule:

    *** When you multiply or divide by a NEGATIVE number,
        FLIP the inequality sign! ***

Solutions are ranges of numbers, not single values.

Example: Solve -3x + 4 > 13

Step 1: Subtract 4 from both sides
            -3x > 9

Step 2: Divide by -3 (FLIP the sign!)
            x < -3

The solution is all numbers less than -3.

Practice Problems

1) Solve: x + 5 > 12

2) Solve: 3y - 2 <= 10

3) Solve: -2m > 8

4) Solve: 4n + 7 >= 23

5) Solve: -5a + 3 < -17

6) Solve: 2(x - 4) <= 6

7) Solve: 3x + 8 > x + 20

8) Solve: x - 9 < -3

9) Solve: -4y >= 24

10) Solve: 6n + 5 > 35

11) Solve: 2(3x - 1) <= 16

12) Solve: -3(m + 4) > 6

13) Solve: 5a - 7 < 3a + 9

14) Solve: 4x + 11 >= 2x + 23

15) Solve: -2(3y - 5) < 14

16) Solve: 3x - 8 <= 5x + 4

17) Solve: 7 - 4n > 19

18) Solve: 3(2x + 1) >= 5x + 8

19) A student needs at least 75 total points on four quizzes. Her first three scores are 12, 18, and 20. Write and solve an inequality to find the minimum score q needed on quiz 4.

20) Solve: -2x + 9 > 4x - 9