LESSON MAKER PRO

Inequality Moves

Distribute, combine, and find the values that work.

GRADE 8 · 8.AT.B.4.a

8.AT.B.4.a "Solve inequalities including those requiring the use of the distributive property and combining like terms."

NAME _____ DATE _____

SOLVE STEP BY STEP

Distribute to remove parentheses, then combine like terms on each side. Move the x terms to one side and the numbers to the other. If you multiply or divide by a negative number, reverse the inequality sign.

WORKED EXAMPLE

Solve 11(x - 13) + 23 >= 17x - 36.

1. Distribute: 11x - 143 + 23 >= 17x - 36
2. Combine like terms: 11x - 120 >= 17x - 36
3. Move terms: -6x >= 84
4. Divide by -6 and reverse the sign: x <= -14

Answer: x <= -14

PRACTICE 6 problems

1 Solve 3(x + 4) < 21.

ANSWER _____

2 Solve 5(x - 2) + 6 >= 16.

ANSWER _____

3 Solve 2(x + 3) + 4x > 18.

ANSWER _____

4 Solve 6(x - 1) <= 2x + 10.

ANSWER _____

5 Solve -3(2x - 4) + x > 22.

ANSWER _____

6 Solve 4(2x - 3) - 5(x + 2) >= 8.

ANSWER _____

APPLY IT Show your work

1 An online store sells sticker packs for $6 each and charges $2 shipping for each pack. You have a $5 coupon for your whole order and $31 to spend. If you buy x packs, what is the greatest number of packs you can buy?

WORK SPACE

ANSWER _____

2 You want to practice for a talent show for at least 90 minutes this week. You practiced for 12 minutes on Monday. On each of x other days, you plan to practice for 8 minutes before school and 5 minutes after school. What is the fewest other days you need to practice?

WORK SPACE

ANSWER _____

CHALLENGE One step up

Solve 2(3x - 4) <= 6x + 1. In two sentences, explain whether every number, no number, or only some numbers work.

WORK SPACE AND ANSWER

ANSWER KEY

Inequality Moves

GRADE 8 · 8.AT.B.4.a

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Solve 3(x + 4) < 21.	**x < 3**
2	Solve 5(x - 2) + 6 >= 16.	**x >= 4**
3	Solve 2(x + 3) + 4x > 18.	**x > 2**
4	Solve 6(x - 1) <= 2x + 10.	**x <= 4**
5	Solve -3(2x - 4) + x > 22.	**x < -2**
6	Solve 4(2x - 3) - 5(x + 2) >= 8.	**x >= 10**

PART 2 · APPLY IT

1. **4 packs** Write x(6 + 2) - 5 <= 31, so x <= 4.5. Since x must be a whole number, the greatest possible value is 4.
2. **6 other days** Write 12 + x(8 + 5) >= 90. This gives x >= 6, so 6 other days is the minimum.

CHALLENGE

Distributing gives 6x - 8 <= 6x + 1, which simplifies to -8 <= 1. Since this is true, every real number is a solution.

Accept equivalent forms of each inequality. For the word problems, students must use whole-number answers that fit the context.