LESSON MAKER PRO

Compare the Costs

Write inequalities from words and real situations.

GRADE 7 · 7.AT.C.9.a

7.AT.C.9.a "Write inequalities of the form px + q > r or px + q < r, where p, q, and r are specific rational numbers."

NAME _____ DATE _____

BUILD AN INEQUALITY

Let x stand for the unknown amount. Write the part that changes as a number times x, add or subtract the fixed amount, then use > for "greater than" or < for "less than."

WORKED EXAMPLE

Write an inequality: Seven-eighths of x, decreased by five-sixths, is greater than nineteen-tenths.

1. Write seven-eighths of x as 7/8x.
2. Decreased by five-sixths gives 7/8x - 5/6.
3. Use > to compare that expression with 19/10.

Answer: 7/8x - 5/6 > 19/10

PRACTICE 6 problems

1 Write an inequality: Four times x plus 3 is less than 15.

ANSWER _____

2 Write an inequality: One-half of x minus 2 is greater than 6.

ANSWER _____

3 Write an inequality: Negative 3 times x plus 1/4 is less than 8.

ANSWER _____

4 Write an inequality: The sum of 2/3 of x and 5 is greater than 9.

ANSWER _____

5 Write an inequality: The result of subtracting 3/4 from -2x is less than -1.

ANSWER _____

6 Write an inequality: Five less than 1/3 of x is greater than -4.

ANSWER _____

APPLY IT Show your work

1 A music app charges $2.50 to start a download and $0.75 per song. You want your total cost to be less than $8.00. Let x be the number of songs. Write an inequality for the cost.

WORK SPACE

ANSWER _____

2 A gaming club has $4.50 in donations. Each ticket sold adds $1.25. The club wants to collect more than $22.00. Let x be the number of tickets sold. Write an inequality for the total.

WORK SPACE

ANSWER _____

CHALLENGE One step up

In a game, you start with 18 points. Each missed move takes away 2.5 points. Let x be the number of missed moves. Write an inequality of the form $px + q < r$ to show when your score is below 5.5 points. Explain in one sentence why the number multiplying x is negative.

WORK SPACE AND ANSWER

ANSWER KEY

Compare the Costs

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Write an inequality: Four times x plus 3 is less than 15.	**4x + 3 < 15**
2	Write an inequality: One-half of x minus 2 is greater than 6.	**1/2x - 2 > 6**
3	Write an inequality: Negative 3 times x plus 1/4 is less than 8.	**-3x + 1/4 < 8**
4	Write an inequality: The sum of 2/3 of x and 5 is greater than 9.	**2/3x + 5 > 9**
5	Write an inequality: The result of subtracting 3/4 from -2x is less than -1.	**-2x - 3/4 < -1**
6	Write an inequality: Five less than 1/3 of x is greater than -4.	**1/3x - 5 > -4**

PART 2 · APPLY IT

1. **0.75x + 2.50 < 8.00** Multiply the number of songs by $0.75, then add the $2.50 starting charge. The total must be less than $8.00.
2. **1.25x + 4.50 > 22.00** Add $1.25 per ticket to the $4.50 already collected. The total must be greater than $22.00.

CHALLENGE

-2.5x + 18 < 5.5. The number multiplying x is negative because each missed move takes away 2.5 points.

Accept equivalent inequalities that keep the stated comparison and correctly represent each quantity. Students do not need to solve for x.