Introduction to Inequalities

Explore

Name_____

Date _____ Period _____

The Human Number Line

Use the table to record data collected in class. The first line in the table shows the starting location for walker A & B. Determine the appropriate inequality symbol to place between the numbers representing the locations of walker A and B.

Operation	Walker A location (Green)	Inequality Symbol	Walker B location (yellow)
Starting position	2	<	4
Add 2 to both locations	2 + 2 4	<	4 + 2 6
Subtract 3	4 - 3 1	<	6 - 3 3
Add (− 2)	1 + (-2) -1	<	3 + (-2) 1
Subtract (− 4)	-1 - (-4) 3	<	1 - (-4) 5
Multiply by 2	3 (2) 6	<	5 (2) 10
Subtract 2	6 - 2 4	<	10 - 2 8
Divide by 4	4 ÷ 4 1	<	8 ÷ 4 2
Multiply by (− 3)	1 (-3) -3	>	2 (-3) -6
Subtract 3	-3 - (3) -6	>	-6 - (3) -9
Divide by (− 3)	-6 ÷ (-3) 2	<	-9 ÷ (-3) 3
Divide by 0.5	2 ÷ 0.5 4	<	3 ÷ 0.5 6
Multiply by (− 0.5)	4 (-0.5) -2	>	6 (-0.5) -3

Linear Inequalities LI2

Analyzing the Data

1. When the same number is added to both locations, did the walker's positions on the number line switch left to right? Explain your answer.

   No, walkers position didn't change

2. When the same number is subtracted from both locations, did the walker's positions on the number line switch left to right? Explain your answer.

   No, positions still didn't change just moved to the left or right if

3. When the same number is multiplied by both locations, did the walker's positions on the number line switch left to right? Explain your answer.

   If negative: yes
   If positive: no

4. When the same number is divided by both locations, did the walker's positions on the number line switch left to right? Explain your answer.

   If negative: yes
   If positive: no

5. There were three times when the walker's position switched left and right. What do you notice about the operations and/or the numbers used?

   They were negative #'s doesn't matter if integer or fraction

6. Summarize your findings about the effects of adding, subtracting, multiplying, and dividing by the same number on both sides of an inequality using the table below.

Operation	Sign of Number	Does the inequality symbol reverse?
Addition	+	No
Addition	-	No
Subtraction	+	No
Subtraction	-	No
Multiplication	+	No
Multiplication	-	yes
Division	+	No
Division	-	yes