

LESSON
5.1**Investigating Algebra Activity:
Inequalities***For use before the lesson "Solve Inequalities Using Addition and Subtraction"***Materials:** paper and pencil**QUESTION****Will adding or subtracting a number to each side of an inequality change the inequality?****EXPLORE****Add or subtract****STEP 1** Complete table

Copy and complete the table. Start with the true inequality in the first row. Then apply the given rule. Use your answer to apply the next rule. The first column has been completed for you.

	$4 < 7$	$-8 < -2$	$2 > -4$	$0 > -5$	$5 > 2$
Add 4 to each side.	$8 < 11$				
Add -10 to each side.	$-2 < 1$				
Subtract 6 from each side.	$-8 < -5$				

STEP 2 Analyze inequalities in table

Check each inequality in the table to see whether it is a true inequality. Did you need to change the direction of the inequality symbol to make it true?

**DRAW
CONCLUSIONS****In Exercises 1–6, predict whether the direction of the inequality symbol will change when you apply the given rule. Check your prediction.**

- $5 < 12$; add 2
- $21 > 16$; subtract -6
- $3 > -8$; add -3
- $1 < 9$; subtract 10
- $-7 < -3$; add 15
- $-11 > -24$; subtract -4
- Use the Explore and Exercises 1–6 to draw a conclusion about adding or subtracting the same number to an inequality.

Apply the given rule to solve the inequality.

- $x - 7 > 19$; add 7
- $x + 6 < 24$; subtract 6
- $x - 4 \leq -10$; subtract -4
- $x + 14 \geq 35$; add -14
- $x - 27 > -11$; add 27
- $x + 30 < 12$; subtract 30