SUGGESTED LEARNING STRATEGIES: Create Representations, Work Backward

My Notes

6. More people came to the Jackson family picnic than to the Patel family picnic. How many people could have come to the Jackson picnic?

An **inequality** is a mathematical statement that compares two quantities using $<$, $>$, $\geq$, or $\leq$.

7. Write an inequality that compares the number of people who came to the Jackson family picnic to the number of people who came to the Patel family picnic. Let the variable x represent the number of people who came to the Jackson family picnic.

READING MATH

$>$ is greater than

$<$ is less than

$\geq$ is greater than or equal to

$\leq$ is less than or equal to

You can use inverse operations to solve inequalities.

EXAMPLE 6

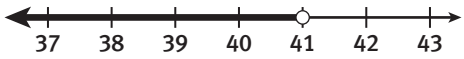
Find the value of n if $n + 16$ is less than 57.

Step 1: Write the problem. $n + 16 < 57$

Step 2: Subtract 16 from both sides to isolate n. $n + 16 - 16 < 57 - 16$

Solution: $n < 41$

You can represent the solution $n < 41$ on a number line.



There is an open circle on 41 because it is not part of the solution. The ray to the left of 41 means all numbers less than 41. If the solution had been $n \leq 41$ the circle would be filled in.

You can check your solution by choosing any number less than 41 and substituting it in the original inequality. If the resulting statement is true, the solution checks. For example, choose 39 and substitute it for n.

$$n + 16 < 57$$
$$39 + 16 \stackrel{?}{<} 57$$
$$55 < 57$$

MATH TIP

When an inequality has $>$ or $<$, use an open circle on the graph.

When an inequality has $\geq$ or $\leq$, use a closed circle on the graph.

TRY THESE **E**

Solve and graph each inequality. Check your work.

a. $y - 28 > 42$ **b.** $x + 13 \leq 36$