

Solving One-Step Equations

Becoming Undone

ACTIVITY 3.3

continued

SUGGESTED LEARNING STRATEGIES: Create Representations, Work Backward

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?

Answers may vary. Sample answer: any number greater than 51

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.

$$x > 51$$

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.

$$n + 16 < 57$$

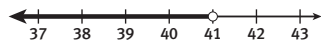
Step 2: Subtract 16 from both sides to isolate n .

$$n + 16 - 16 < 57 - 16$$

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 .

$$\begin{aligned} n + 16 &< 57 \\ 39 + 16 &\stackrel{?}{<} 57 \\ 55 &< 57 \end{aligned}$$

TRY THESE E

Solve and graph each inequality. Check your work.

Check students' graphs

- a. $y - 28 > 42$ $y > 70$ b. $x + 13 \leq 36$ $x \leq 23$

My Notes

READING MATH

- $>$ is greater than
- $<$ is less than
- \geq is greater than or equal to
- \leq is less than or equal to

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.

ACTIVITY 3.3 Continued

TRY THESE D Create Representations, Word Backward Students may struggle with item e. Ask volunteers to show possible approaches to solving the equation.

6-7 Activating Prior Knowledge These items are intended to be a transition from equations to inequalities. Allow several students to share their suggestions for the number of people who might attend the Jackson's picnic to solidify understanding that there are many values which make an inequality true.