

# Activity 9 Assessment

## Solving and Graphing Inequalities Involving Integers

### Solving and Graphing Integer Inequalities

Determines whether a number is part of the solution for an inequality

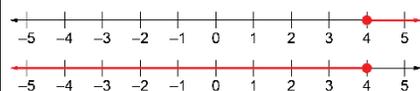
"To check whether  $x = 3$  is a solution to the inequality  $-7x + 4x > -3$ , I'm going to evaluate  $-7x + 4x$  when  $x$  is 3.

$$\begin{aligned} -7(3) + 4(3) &= -21 + 12 \\ &= -9 \end{aligned}$$

This is less than the number on the right side of the inequality, so 3 is not part of the solution set."

Matches an inequality with the graph that shows its solution

"Which of these graphs shows the solution to the inequality  $5 - 2x \leq -3$ ?"



When  $x = 4$ ,  
 $5 - 2x = 5 - 2(4)$   
 $= 5 - 8$   
 $= -3$

So,  $x = 4$  is the solution to the related equation.

Testing a point on the second graph, when

$$\begin{aligned} x = 0, 5 - 2x &= 5 - 2(0) \\ &= 5 \end{aligned}$$

This is greater than the number on the right side of the inequality, so it is not part of the solution.

The first graph is correct."

Solves inequalities involving integers

Solve the inequality  $-3n - 6 \geq 6$ .

"For the related equation  $-3n - 6 = 6$ , I can write

$$\begin{aligned} n &\rightarrow \times (-3) \rightarrow -6 \rightarrow 6 \\ -4 &\leftarrow + (-3) \leftarrow + 6 \leftarrow 6 \end{aligned}$$

The solution to the equation is  $n = -4$ .

What happens when  $n$  is greater than  $-4$ , say  $n = 0$ ?

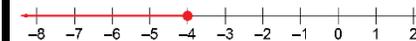
$$\begin{aligned} -3n - 6 &= -3(0) - 6 \\ &= -6 \end{aligned}$$

This is less than 6, so 0 is not part of the solution set. I know the solution is  $n \leq -4$ ."

Graphs the solution to an inequality involving integers

Graph the solution to the inequality  $-3n - 6 \geq 6$ .

"For the inequality  $-3n - 6 \geq 6$ , my solution was  $n \leq -4$ . I draw a solid dot at  $n = -4$  because it is part of the solution. I draw a line extending to the left to show that all the numbers less than  $-4$  are also part of the solution."



### Observations/Documentation