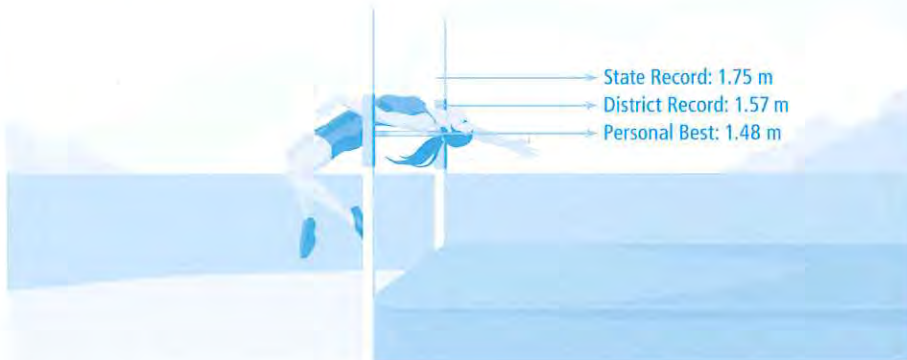


**MODEL & DISCUSS**

Skyler competes in the high jump event at her school. She hopes to tie or break some records at the next meet.



- A. Write and solve an equation to find  $x$ , the number of meters Skyler must add to her personal best to tie the district record.
- B. **Look for Relationships** Rewrite your equation as an inequality to represent the situation where Skyler *breaks* the district record. How is the value of  $x$  in the inequality related to the value of  $x$  in the equation? © MP.7
- C. How many meters does Skyler need to add to her personal best to break the state record?

**HABITS OF MIND**

**Make Sense and Persevere** What strategy did you use to answer the questions? What other strategy might you have used? © MP.1

**EXAMPLE 1**  **Try It! Solve Inequalities**

1. Solve each inequality and graph the solution.

a.  $-3(2x + 2) < 10$

b.  $2(4 - 2x) > 1$

**EXAMPLE 2**  **Try It! Solve an Inequality With Variables on Both Sides**

2. Solve  $2x - 5 < 5x - 22$ . Then graph the solution.





## EXAMPLE 3

**Try It!** Understand Inequalities With Infinitely Many or No Solutions

3. Solve each inequality.

a.  $-2(4x - 2) < -8x + 4$

b.  $-6x - 5 < -3(2x + 1)$

## EXAMPLE 4

**Try It!** Use Inequalities to Solve Problems

4. If Florist B increases the cost per rose to \$5.20, for what number of roses is it less expensive to order from Florist A? From Florist B?

**HABITS OF MIND**

**Look for Structure** How is solving an inequality with variables on one side similar to and different from solving an equality with variables on both sides? © MP.7



## Do You UNDERSTAND?

- ESSENTIAL QUESTION** How are the solutions of an inequality different from the solution of an equation?
- Reason** How is dividing each side of  $x > 0$  by a negative value different from dividing each side by a positive value? © MP.2
- Vocabulary** Give an example of two inequalities that are *equivalent inequalities*. Explain your reasoning.
- Error Analysis** Rachel multiplied each side of  $x \geq 2$  by 3. She wrote the result as  $3x \leq 6$ . Explain the error Rachel made. © MP.3

## Do You KNOW HOW?

Solve each inequality and graph the solution.

5.  $\frac{1}{2}x < 6$

6.  $-4x \geq 20$

7.  $8 \leq -4(x - 1)$

8.  $3x - 2 > 4 - 3x$

9. Lourdes plans to jog at least 1.5 miles. Write and solve an inequality to find  $x$ , the number of hours that Lourdes will have to jog.

