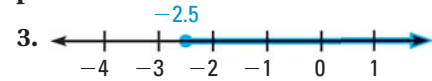


**GUIDED PRACTICE** for Examples 1 and 2

1. **ANTARCTICA** The lowest temperature recorded in Antarctica was -129°F at the Russian Vostok station in 1983. Use only this fact to write and graph an inequality that describes the temperatures in Antarctica.

Write an inequality represented by the graph.



EQUIVALENT INEQUALITIES Just as you used properties of equality to produce equivalent equations, you can use properties of inequality to produce *equivalent inequalities*. **Equivalent inequalities** are inequalities that have the same solutions.

KEY CONCEPT*For Your Notebook***Addition Property of Inequality**

Words Adding the same number to each side of an inequality produces an equivalent inequality.

Algebra If $a > b$, then $a + c > b + c$. If $a \geq b$, then $a + c \geq b + c$.
 If $a < b$, then $a + c < b + c$. If $a \leq b$, then $a + c \leq b + c$.

EXAMPLE 3 Solve an inequality using addition

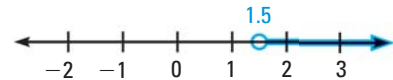
Solve $x - 5 > -3.5$. Graph your solution.

$$x - 5 > -3.5 \quad \text{Write original inequality.}$$

$$x - 5 + 5 > -3.5 + 5 \quad \text{Add 5 to each side.}$$

$$x > 1.5 \quad \text{Simplify.}$$

► The solutions are all real numbers greater than 1.5. Check by substituting a number greater than 1.5 for x in the original inequality.



CHECK $x - 5 > -3.5$ Write original inequality.

$$6 - 5 \stackrel{?}{>} -3.5 \quad \text{Substitute 6 for } x.$$

$$1 > -3.5 \quad \checkmark \quad \text{Solution checks.}$$

**GUIDED PRACTICE** for Example 3

Solve the inequality. Graph your solution.

4. $x - 9 \leq 3$

5. $p - 9.2 < -5$

6. $-1 \geq m - \frac{1}{2}$