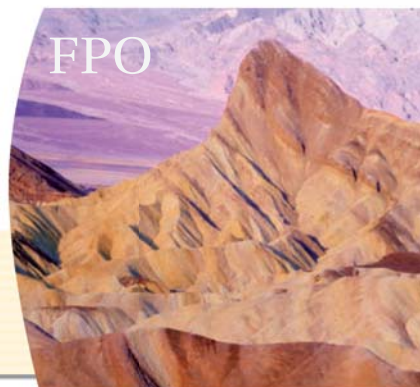


6.1

TEKS A.7.A, A.7.B

Solve Inequalities Using Addition and Subtraction

FPO



Before

You solved equations using addition and subtraction.

Now

You will solve inequalities using addition and subtraction.

Why

So you can describe desert temperatures, as in Example 1.

Key Vocabulary

- graph of an inequality
- equivalent inequalities
- inequality, p. 21
- solution of an inequality, p. 22

On a number line, the **graph of an inequality** in one variable is the set of points that represent all solutions of the inequality. To graph an inequality in one variable, use an open circle for $<$ or $>$ and a closed circle for \leq or \geq . The graphs of $x < 3$ and $x \geq -1$ are shown below.



Graph of $x < 3$



Graph of $x \geq -1$

EXAMPLE 1 Write and graph an inequality

DEATH VALLEY The highest temperature recorded in the United States was 134°F at Death Valley, California, in 1913. Use only this fact to write and graph an inequality that describes the temperatures in the United States.

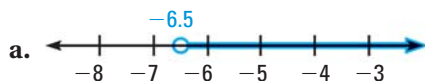
Solution

Let T represent a temperature (in degrees Fahrenheit) in the United States. The value of T must be less than or equal to 134. So, an inequality is $T \leq 134$.



EXAMPLE 2 Write inequalities from graphs

Write an inequality represented by the graph.



Solution

a. The open circle means that -6.5 is not a solution of the inequality. Because the arrow points to the right, all numbers greater than -6.5 are solutions.

▶ An inequality represented by the graph is $x > -6.5$.

b. The closed circle means that 4 is a solution of the inequality. Because the arrow points to the left, all numbers less than 4 are solutions.

▶ An inequality represented by the graph is $x \leq 4$.