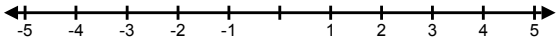
6.1 Solve Inequalities Using Addition and Subtraction

Objective: You will solve inequalities using addition and subtraction.

Solve the Equations:

$x+3=7$

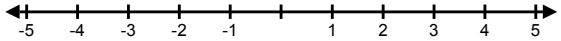
Graph the Solution:



Solve the Inequality:

$x+3>7$

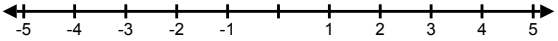
Graph the Solution:



Solve the Inequality:

$x+3\leq 7$

Graph the Solution:



Skill #27: Graphing an inequalities on a number line.

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.

Your Turn !

You Try: Skill #27

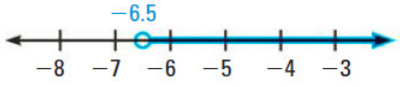
ANTARCTICA The lowest temperature recorded in Antarctica was −129°F at the Russian Vostok station in 1983. Use only this fact to write and graph an inequality that describes the temperatures in Antarctica.

Don't forget to show your work and write down your answer !

Skill #28: Write an inequalities represented by a graph.

EXAMPLE 2 **Write inequalities from graphs**

Write an inequality represented by the graph.

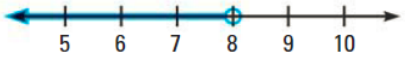
a. 

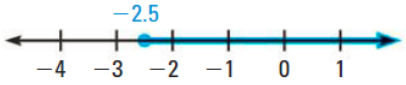
b. 

Your Turn !

You Try: Skill #28

Write an inequality represented by the graph.

2. 

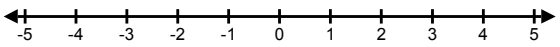
3. 

Don't forget to show your work and write down your answer !

Skill #29: Solving one-step inequalities using addition.

EXAMPLE 3 **Solve an inequality using addition**

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



Your Turn !

You Try: Skill #29

Solve the inequality. Graph your solution.

(a) $x - 9 \leq 3$ **(b)** $p - 9.2 < -5$ **(c)** $-1 \geq m - \frac{1}{2}$

Don't forget to show your work and write down your answer !

Skill #30: Solving one-step inequalities using addition.

EXAMPLE 4 **Solve an inequality using subtraction**

Solve $9 \geq x + 7$. Graph your solution.

Your Turn !

You Try: Skill #30

Solve $y + 5.5 > 6$. Graph your solution.

Don't forget to show your work and write down your answer !

Skill #31: Writing and solving inequalities using real-world problems.

EXAMPLE 5 **Solve a real-world problem**

LUGGAGE WEIGHTS You are checking a bag at an airport. Bags can weigh no more than 50 pounds. Your bag weighs 16.8 pounds. Find the possible weights w (in pounds) that you can add to the bag.

Your Turn !

You Try: Skill #31

WHAT IF? In Example 5, suppose your bag weighs 29.1 pounds. Find the possible weights (in pounds) that you can add to the bag.

Don't forget to show your work and write down your answer !