Lesson 8-6

Example 1 Write Inequalities with < or >
MAIL Write an inequality for the sentence.
A package must weigh less than 24 ounces.

Let w = package's weight.
$w < 24$

Example 2 Write Inequalities with < or >
AGE Write an inequality for the sentence.
You must be over 18 to join.

Let a = person's age.
$a > 18$

Example 3 Write Inequalities with ≤ or ≥
DRIVING Write an inequality for the sentence.
You must be 16 years of age or older to drive.

Let a = person's age.
$a \geq 16$

Example 4 Write Inequalities with ≤ or ≥
DRIVING Write an inequality for the sentence.
Your speed must be 35 miles per hour or less.

Let s = car's speed.
$s \leq 35$

Example 5 Determine the Truth of an Inequality
For $n = 2$, state whether $n + 6 > 9$ is *true* or *false*.

$n + 6 > 9$ Write the inequality.

$2 + 6 \overset{?}{>} 9$ Replace *n* with 2.

$8 \not> 9$ Simplify.

Since 8 is not greater than 9, $8 > 9$ is false.

Example 6 Determine the Truth of an Inequality
For $x = -2$, state whether $11 \leq 9 - x$ is *true* or *false*.

$11 \leq 9 - x$ Write the inequality.

$11 \overset{?}{\leq} 9 - (-2)$ Replace *x* with –2.
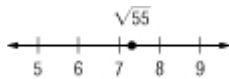
$11 \leq 11$ Simplify.

While $11 < 11$ is false, $11 = 11$ is true, so $11 \leq 11$ is true.

Example 7 Graph an Inequality
Graph $n < 4$ on a number line.

Place an open circle at 4. Then draw a line and an arrow to the left.

Example 8 Graph an Inequality
Graph $n \geq 4$ on a number line.

Place a closed circle at 4. Then draw a line and an arrow to the right.