3-1 Reteaching

Inequalities and Their Graphs

You use the following symbols for inequalities.

$>$ is greater than $\geq$ is greater than or equal to

$<$ is less than $\leq$ is less than or equal to

Problem

What inequality represents "5 plus a number y is less than -10"?

5 plus a number y	is less than	-10
$5 + y$	$<$	-10

The inequality $5 + y < -10$ represents the phrase.

Exercises

Write an inequality that represents each verbal expression.

1. p is greater than or equal to 5 **$p \geq 5$**

2. a is less than or equal to -4 **$a \leq -4$**

3. 2 times d is less than 10 **$2d < 10$**

4. r divided by 5 is greater than 0 **$\frac{r}{5} > 0$**

Problem

Is -2 a solution of $3t + 10 \geq 5$?

$3t + 10 \overset{?}{\geq} 5$	Original inequality
$3(-2) + 10 \overset{?}{\geq} 5$	Substitute -2 for t.
$-6 + 10 \geq 5$	Simplify.
$4 \ngeq 5$	-2 is not a solution.

Exercises

Determine whether each number is a solution of the given inequality.

5. $5b - 7 > 13$ **a.** -4 **b.** 4   **c.** 8
                        no   **no**   **yes**

6. $2(m + 1) < -6$ **a.** -6 **b.** -4 **c.** -2
                        yes   **no**   **no**

7. $\dfrac{8 + h}{2} \leq 8$ **a.** 6   **b.** 8   **c.** 10
                        yes   **yes**   **no**

# 3-1 Reteaching (continued)

Inequalities and Their Graphs

When graphing an inequality on a number line, an open circle means the number is not included in the inequality. A closed circle means the number is included in the inequality.

Problem

What is the graph of $w \geq -1$?

Since w is greater than or equal to -1, place a closed circle at -1.

Draw a dark line with an arrow to the right of the closed circle to show the numbers greater than -1.
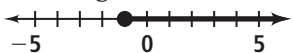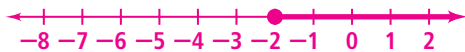

Exercises

Graph each inequality.

8. $y \leq 0$

9. $p > -4$

10. $a \geq -2$

Problem

What inequality represents the graph?

The circle is open so 4 is not included in the inequality.

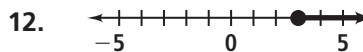The dark line and arrow are to the left indicating less than.

The graph represents "x is less than 4" or $x < 4$.

Exercises

Write an inequality for each graph.
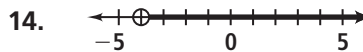
11.

$x < -1$

12.

$x \geq 3$

13.

$x \leq 2$

14.

$x > -4$