

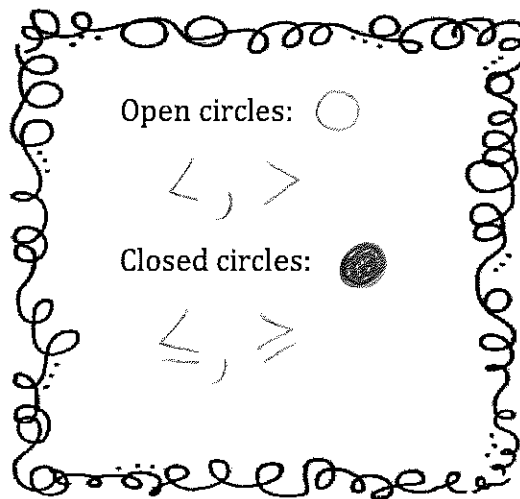
## Section 2.1 Writing and Graphing Inequalities

*Inequality*: a mathematical sentence that compares expressions

*solution of an inequality*: a value that makes the inequality true

*solution set*: the set of all solutions of an inequality

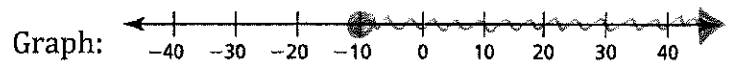
*graph of an inequality*: shows the solutions set of the inequality on a number line



Write an inequality for each statement. Then sketch the graph of the numbers that make each inequality true.

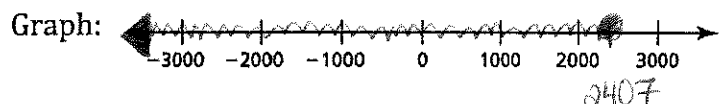
- a. The temperature  $t$  in Sweden is at least  $10^{\circ}\text{C}$ .

Inequality:  $t \geq 10$



- b. The elevation  $e$  of Alabama is at most 2407 feet.

Inequality:  $e \leq 2407$



Write the sentence as an inequality.

1. Twelve is greater than or equal to five times a number  $n$ .

$$12 \geq 5n$$

2. One-third of a number  $h$  is less than 15.

$$\frac{1}{3}h < 15$$

3. Seven is less than or equal to the difference of a number  $q$  and 6.

$$7 \leq q - 6$$

4. The sum of a number  $u$  and 14 is more than 6.

$$u + 14 > 6$$

Tell whether the value is a solution of the inequality.

5.  $d - 7 < 12$ ;  $d = 19$

$$19 - 7 < 12$$

$$12 < 12$$

Not a Solution

6.  $9 \geq 3n + 6$ ;  $n = 1$

$$9 \geq 3(1) + 6$$

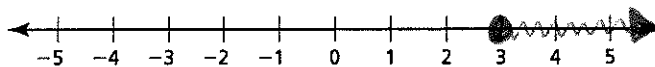
$$9 \geq 3 + 6$$

$$9 \geq 9$$

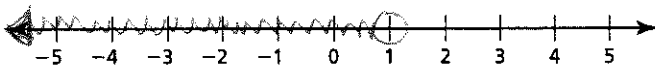
Solution

Graph the inequality.

7.  $x \geq 3$

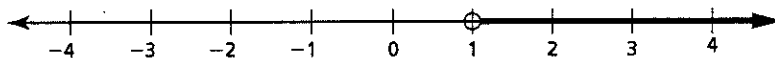


8.  $x < 1$



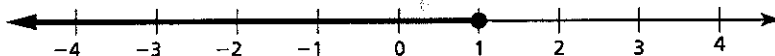
Write an inequality that represents the graph.

- 9.



$$\{x \mid x > 1\}$$

- 10.



$$\{x \mid x \leq 1\}$$