

# 2.1 Notetaking with Vocabulary

← typo

**Learning target:** Understand solving linear inequalities.

**Success criteria:** I can graph inequalities.

Write the meaning of each vocabulary term.

inequality :  $< > \leq \geq$  inequality symbols

- a mathematical sentence that compares expressions.

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

solution set : the group of all solutions

set builder notation  $\{ \}$  the set containing  $\{x | x > 5\}$

graph of an inequality : picture of the solution set

- open circle used when # not included
- closed circle used when # is included

## Core Concepts

### Representing Linear Inequalities

Words

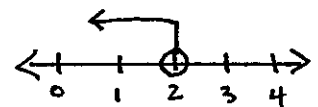
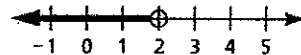
Algebra

Graph

$x < 2$

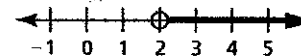
$x$  is less than 2

$x < 2$



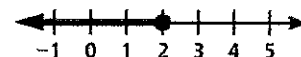
$x$  is greater than 2

$x > 2$



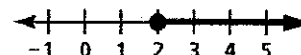
$x$  is less than or equal to 2

$x \leq 2$



$x$  is greater than or equal to 2

$x \geq 2$



**2.1 Notetaking with Vocabulary (continued)**

**Practice**

In Exercises 1–4, 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. multiplication

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

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

$$7 \leq q - 6$$

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

addition  $u + 14 > 6$

Value of $x$	$x + 5 \geq -2$	Is inequality true?
-6	$-6 + 5 \geq -2$ $-1 \geq -2$	Yes
-7	$-7 + 5 \geq -2$ $-2 \geq -2$	Yes
-8	$-8 + 5 \geq -2$ $-3 \geq -2$	No

-6 is a sol'n  
-7 is a sol'n  
-8 is NOT a sol'n

In Exercises 5 and 6, tell whether the value is a solution of the inequality.

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

$$19 - 7 < 12$$

$$12 < 12$$

19 is not a sol'n

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

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

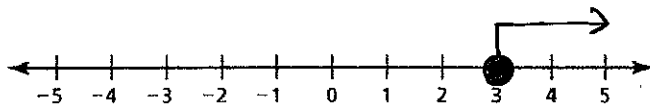
$$9 \geq 9$$

1 is a sol'n

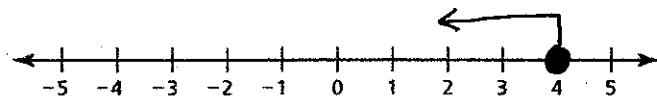
## 2.1 Notetaking with Vocabulary (continued)

In Exercises 7–10, graph the inequality.

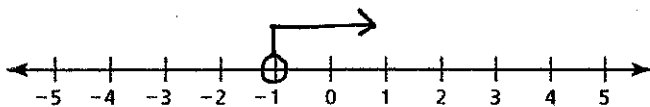
7.  $x \geq 3$



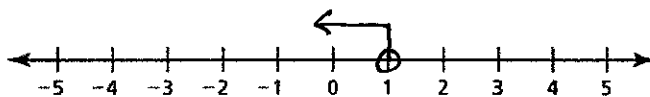
8.  $x \leq 4$



9.  $x > -1$



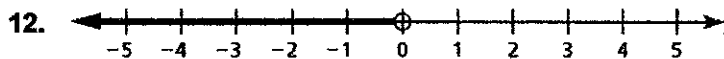
10.  $x < 1$



In Exercises 11–14, write an inequality that represents the graph.

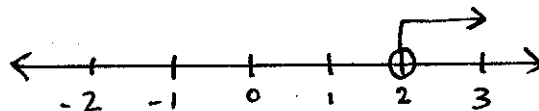


$$x > 1$$

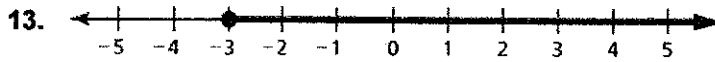


$$x < 0$$

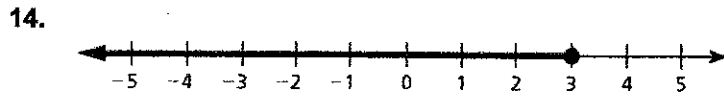
$$2 < x$$



$$x > 2$$



$$x \geq -3$$



$$x \leq 3$$

Look at story problem on page 57.

