

Lesson 3.01 Introduction to Inequalities

Students will be able to:

- Content Objective: Express inequalities on a number line and determine their truth values.
- Language Objective: Describe the characteristics of an inequality.



Warm Up

Determine whether the inequalities are true or false.

a. $-10 > -4$

b. $2.4 < 1.2$

c. $352 \geq 352$

d. $\frac{1}{2} \geq \frac{1}{4}$



Vocabulary Review

Matching- Match the following symbol to its correct meaning

___ 1. $x \leq$

a. x is equal to

___ 2. $x \geq$

b. x is greater than

___ 3. $x =$

c. x is greater than or equal to

___ 4. $x <$

d. x is less than or equal to

___ 5. $x >$

e. x is less than



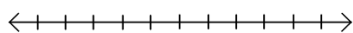
Graphic Organizer

Sign	Type of Circle	Example
$<$	Open Circle	$x < 0$
$>$	Open Circle	$x > 0$
\leq	Closed Circle	$x \leq 0$
\geq	Closed Circle	$x \geq 0$


Skill 1: Number Lines

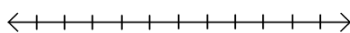
Graph the following on the number lines and write a numerical solution that satisfies the equation/inequality.

a. $x > 6$



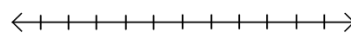
Solution: _____

b. $h \leq -3$



Solution: _____

c. $a \neq 1$

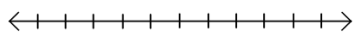


Solution: _____


Exercise 1: Number Lines

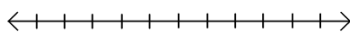
Graph the following on the number lines and write a numerical solution that satisfies the equation/inequality.

a. $x < 2$



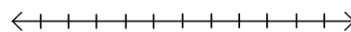
Solution: _____

b. $d = 7$



Solution: _____

c. $f \geq -4$



Solution: _____


Skill 2: Truth Values

Determine whether the values for b are true or false for the inequality: $4(5 + 7b) < \frac{160}{b}$

a. $b = 1$

b. $b = 5$

c. $b = 10$


Exercise 2: Truth Values

Determine whether the values for a are true or false for the inequality: $88 + a \leq -4(-3a - 1)$

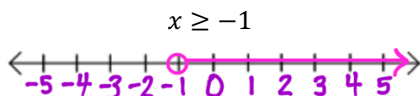
a. $a = 7$

b. $a = 8$

c. $a = 0$


Write It Out

Lily graphed the following inequality on the number line below. Her teacher said she made an error. Can you find Lily's mistake?



Lily's mistake was:


Check Point
Multiple Choice

Which of the following choices makes the inequality $7(x - 2) > 5x - 14$ true?

- a. $x = 1$
- b. $x = -24$
- c. $x = -19$
- d. $x = -24$



3.01- Problem Set

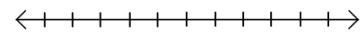
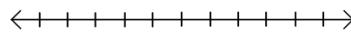
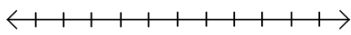
Name: _____

1. Graph the following on the number lines and choose a numerical solution that satisfies the equation/inequality.

a. $x < -3$

b. $b > -3$

c. $x = 5$



Solution: _____

Solution: _____

Solution: _____

2. Determine whether the values for x are true or false for the inequality: $-3(x + 5) \geq \frac{x+7}{2}$

a. $x = 0$

b. $x = -3$

c. $x = 4$

Multiple Choice

3. Which of the following values, when substituted in for x , makes the inequality $2 + 7x > -2(-2x - 1)$ true?

- a. 0
- b. -1
- c. 8
- d. -10

4. Which of the following represents the inequality $b \leq 0$?

