Course Number

Instructor

Date

Section 1.7 Linear Inequalities

Objective: In this lesson you learned how to solve linear inequalities and inequalities involving absolute value.

Important Vocabulary Define each term or concept.

Solution of an inequality

Graph of an inequality

Linear inequality in one variable

Double inequality

I. Introduction to Inequalities (Page 143)

What you should learn
How to use the language of inequalities

Solving an inequality in the variable x means . . .

Such values are solutions and are said to _____ the inequality.

Example 1: (a) Write the inequality as an interval and state whether it is bounded or unbounded: $x \leq -16$.
(b) Decide whether the interval [4, 12) is bounded or unbounded and then write it as an inequality.

II. Properties of Inequalities (Page 144)

What you should learn
How to recognize solutions of linear inequalities

To solve a linear inequality in one variable, use the _____ to isolate the variable.

When each side of an inequality is multiplied or divided by a negative number, . . .

Two inequalities that have the same solution set are

_____.

Complete the list of Properties of Inequalities given below.

1) Transitive Property: $a < b$ and $b < c \rightarrow$ _____
2) Addition of Inequalities: $a < b$ and $c < d \rightarrow$ _____
3) Addition of a Constant c: $a < b \rightarrow$ _____
4) Multiplication by a Constant c:

   For $c > 0$, $a < b \rightarrow$ _____

   For $c < 0$, $a < b \rightarrow$ _____

III. Solving a Linear Inequality (Pages 145–146)

What you should learn
How to use properties of inequalities to solve linear inequalities

Describe the steps that would be necessary to solve the linear inequality $7x - 2 < 9x + 8$.

The two inequalities $-10 < 3x$ and $14 \geq 3x$ can be rewritten as the double inequality _____.

IV. Inequalities Involving Absolute Value (Page 147)

What you should learn
How to solve inequalities involving absolute values

Let x be a variable or an algebraic expression and let a be a real number such that $a \geq 0$. The solutions of $|x| < a$ are all values of x that _____. The solutions of $|x| > a$ are all values of x that _____

_____.

Example 2: Solve the inequality: $|x + 11| - 4 \leq 0$

The symbol $\cup$ is called a _____ symbol and is used to denote _____.

Example 3: Write the following solution set using interval notation: $x > 8$ or $x < 2$

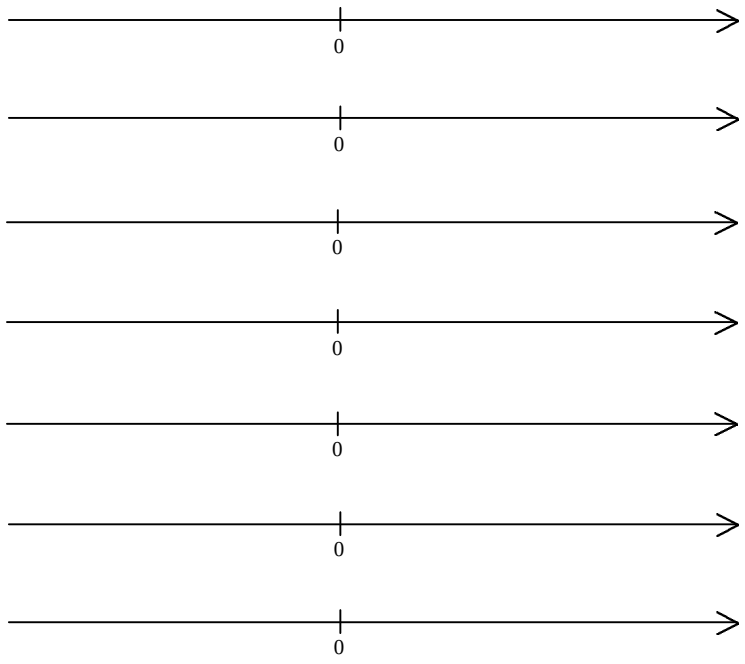
V. Applications of Linear Inequalities (Page 148)

What you should learn
How to use inequalities to model and solve real-life problems

Describe a real-life situation that involves a linear inequality.

Describe a real-life problem that could be solved using an absolute value inequality.

Additional notes



Additional notes

Homework Assignment

Page(s)

Exercises