Lesson 16: Solving and Graphing Inequalities Joined by “And” or “Or”

Classwork

Exercise 1

* 1. Solve , for . Graph the solution on a number line.
  2. Solve for . Graph the solution on a number line and write the solution set as a compound inequality.
  3. Solve for . Graph the solution on a number line and write the solution set as a compound inequality.
  4. Quickly solve , for . Graph the solution on a number line.
  5. Use your work from part (d) to quickly graph the solution on a number line to each inequality below.

Exercise 2

Consider the compound inequality

* 1. Rewrite the inequality as a compound statement of inequality.
  2. Write a sentence describing the possible values of.
  3. Graph the solution set on the number line below.



Exercise 3

Consider the compound inequality .

* 1. Rewrite the inequality as a compound statement of inequality.
  2. Solve each inequality for . Then, write the solution to the compound inequality.
  3. Write a sentence describing the possible values of .
  4. Graph the solution set on the number line below.



Exercise 4

Given or

* 1. What must be true in order for the compound inequality to be a true statement?
  2. Write a sentence describing the possible values of .
  3. Graph the solution set on the number line below.



Exercise 5

Given or

* 1. Solve each inequality for . Then, write the solution to the compound inequality.
  2. Write a sentence describing the possible values of .
  3. Graph the solution set on the number line below.



Exercise 6

Solve each compound inequality for and graph the solution on a number line.

* 1. and
  3. or
  4. or
  5. or

* 1. and

Exercise 7

Solve each compound inequality for and graph the solution on a number line. Pay careful attention to the inequality symbols and the “and” or “or” statements as you work.

* 1. or

* 1. or
  2. and

Problem Set

Solve each inequality for and graph the solution on a number line.

|  |  |
| --- | --- |
| 1. or |  |
| 1. or | 1. and |
|  | 1. or |
|  | 1. or |
| 1. and |  |

1. If inequalities question 8 were joined by “and” instead of “or,” what would the solution set become?
2. If the inequalities in question 9 were joined by “or” instead of “and,” what would the solution set become?