

Graphing "OR" Compound Inequalities

- Graph the first inequality on a number line
- Graph the second inequality on the same number line above the first inequality
- Graph the combination of both inequalities
- If the two graphs overlap, the solution set is all real numbers (a straight line)

More Examples:

4. $x < -6$ or $x > 4$

5. $x > -6$ or $x < 4$

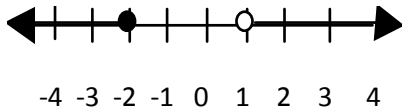
6. $x \leq -9$ or $x > -3$

7. $x < 10$ or $x > 10$

8. $3x + 1 < 4$ or $2x - 5 > 7$

9. $2x \geq x - 3$ or $3x < x + 6$

10. Write a compound inequality for the solution set shown below. Describe the solution set using interval notation.



The symbols \vee or \cup can be used to represent the word **OR**

Interval: _____

11. Mercury is one of only two elements that is liquid at room temperature. Mercury is non-liquid for temperatures less than -38.0°F or greater than 673.8°F . Write a compound inequality for the temperatures at which mercury is non-liquid.



A solution to a compound inequality separated by the word "OR" is a solution if it satisfies _____.

The solution can also satisfy _____.

Turn and Talk:

Consider the following compound sentences:

$x < 1$ and $x > -1$

$x < 1$ or $x > -1$



Does changing the word from "and" to "or" change the solution set? Justify your response (*explain your reasoning and provide mathematical evidence*).

USE A SEPARATE SHEET OF PAPER! For each compound inequality, represent the solution set using a graph and interval notation. Use a straight edge to make your graphs.

1. $x \geq -3$ and $x < 2$

2. $-5 \leq x \leq 4$

3. $x \leq -1$ and $x > 7$

4. $-3x < 36$ and $x + 3 < -1$

5. $x \geq -5$ or $x < 3$

6. $x < 0$ or $x > 6$

7. $4x - 1 < 7$ or $2x > 16$

Write a compound inequality to represent each situation below.

8. Write a compound inequality to represent the scenario.

You'll need to bring at least \$15 to the movies but you won't need more than \$25.

Let m represent the money brought to the movies



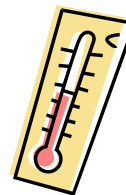
9. In order to participate in the big buddy/little buddy bowling league, you must be over 18 years of age or under 10 years of age.

Let p represent the age of a participant



10. Unsafe body temperatures are those lower than
- 96°F
- or above
- 104°F
- .

Let t represent an unsafe body temperature



11. A survey showed that 92% of students always do their homework. If the margin of error of the data is plus or minus 3.5%, write a compound inequality that represents the percentage of students,
- x
- , who always do their HW.

