Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_ Period: \_\_\_\_\_

**Section 5-4**

**Compound Inequalities**

**Pages 306 - 311**

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| **Part I****Vocabulary** |

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| \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | two inequalities joined together (either by ‘and’ or ‘or’) |
| \_\_\_\_\_\_\_\_\_\_\_\_\_\_ | a graph where two inequalities overlap (“and”) |
| \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | a graph of two inequalities (“or”) |

 |
| **Part II****“AND” Inequalities** | Graph the following two inequalities on their own number lines with **5 in the middle**:Number line - blank (-5 to 5)  x > 3x < 7Number line - blank (-5 to 5)  Now, put both inequalities on the same number line. The solution would be:Number line - blank (-5 to 5)  x > 3 and x < 7 3 < x < 7Example 1: Solve Part 1 and Part 2.

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| Part 1: **-2 < x - 3** | Part 2: **x - 3 < 4** | Now, if we were given, **-2 < x - 3 < 4**, how should we go about solving it? |

Solve the following compound inequality using “and” by **breaking it into two separate inequalities.** Then, graph it using one number line.Number line - blank (-5 to 5)  -2 < x - 3 < 4 **Solution:**  |
| **Part II****“AND” Inequalities****continued** | Example 2: Solve the compound inequality. Then, graph the solution on a number line.-4 < 2x + 2 < 4Number line - blank (-5 to 5)  **Solution:** TRY ON YOUR OWN:Number line - blank (-5 to 5)  6 < r + 7 < 10**Solution:** In Summary: To solve a **compound inequality** with an intersection (“and”), we must:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| **Part III****“OR”****Inequalities** | Graph the following two inequalities on their own number lines **with 0 in the middle**:Number line - blank (-5 to 5)  x > 2x < -1Now, put both inequalities on the same number line. The solution would be:Number line - blank (-5 to 5)  x > 2 or x < -1Example 3: Solve the compound inequality. Then, graph the solution on a number line.x + 2 > 11 or 2 + 4x < 10Number line - blank (-5 to 5)  Number line - blank (-5 to 5)  **Solution:**  |
| **Part III****“OR”****Inequalities****Continued** | TRY ON YOUR OWN:Number line - blank (-5 to 5)  a + 1 > 7 or a - 1 < 3**Solution:** In Summary: To solve a **compound inequality** with a union (“or”), we must:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| **Part IV** **Reading Number Lines** | *Directions: Look at the following graph and write the compound inequality.*

|  |  |
| --- | --- |
| Example 4: http://hotmath.com/images/gt/lessons/genericalg1/and_inequality.gif | ViewImageExample 5:  |

TRY ON YOUR OWN:

|  |  |
| --- | --- |
| 3.ViewImage | ViewImage 4.  |

In Summary: To write a **compound inequality** from a number line, we must consider:­­\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| **Part V****Classwork** | **Part 1: Solve each compound inequality. Then, graph the solution on a number line.** **Use Example 1 and 2 for help.**

|  |  |
| --- | --- |
| 1. -3 < x + 2 < 7

Number line - blank (-5 to 5)  **Solution:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | 1. -5 < 3p + 7 < 22

Number line - blank (-5 to 5)  **Solution:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| 1. -1 < 4m + 7 < 11

Number line - blank (-5 to 5)  **Solution:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | 1. 7 < 3n + 1 < 13

Number line - blank (-5 to 5)  **Solution:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

**Part 2: Solve each compound inequality. Then, graph the solution on a number line.** **Use Example 3 for help.**

|  |  |
| --- | --- |
| 1. m + 14 > 15 or m - 9 < -10

Number line - blank (-5 to 5)  **Solution:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | 1. 3x - 1 < -7 or 4x + 1 > 9

Number line - blank (-5 to 5)  **Solution:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| 1. 4m - 2 < 14 or 5 - 3m < -13

Number line - blank (-5 to 5)  **Solution:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | 1. 3a + 4 > 19 or 6a - 1 < 11

Number line - blank (-5 to 5)  **Solution:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

**Part 3: Write an inequality for each number line. Use Example 4 and 5 for help.**

|  |  |
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| http://images.flatworldknowledge.com/redden/redden-fig02_x025.jpg | 1. ViewImage
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| **Part VI****Homework** | Pg. 326 #31 - 34 |