

SC Algebra 1
6.3 Solving Compound Inequalities – Guided Notes

Warm Up:

Graph the solution of each inequality on a number line.

1. $s \leq -5$

2. $w > 0$

3. $-2 \leq c$

4. $n < 5$

Challenge Problem: Make a conjecture. Graph $x \neq 3$ on the number line below.



Speak Like A Mathematician

compound inequality: two or more _____ that are connected by the words _____ or _____.

intersection: the graph of a compound inequality containing _____.

union: the graph of a compound inequality containing _____.

Example 1: Solve and Graph an Intersection

Solve and then graph the solution set.

a) $-8 \leq h - 2 < 1$



b) $-2 < 3m - 5 \leq 7$



c) $-7 \leq 3x + 2 \leq 5$



Example 2: Apply Compound Inequalities

A cereal manufacturer distributes cases of cereal to grocery stores. Each case contains 12 boxes of cereal. In order to pass the manufacturer's quality assurance test, the case must weigh between 336.4 ounces and 331.6 ounces, which includes 34 ounces for the weight of the case's cardboard box. Write and solve a compound inequality to find the weight of a box of cereal.

In 2014, the annual salary of a full-time nursing assistant is at least \$18,790 and at the most \$36,170. Write a compound inequality for the weekly salary w for a nursing assistant, rounded to the nearest cent. (Hint: There are 52 weeks in a year.)

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Example 3: Solve and Graph a Union

Solve each inequality. Then, graph the solution set.

a) $4n + 8 \leq 16$ or $-3n + 7 < -11$



b) $-2x - 3 \geq 5$ or $3x + 4 > 4$



c) $4z - 4 < -1$ or $4z < -16$



←
**THIS IS A SPECIAL CASE:
Overlapping Intervals**