

Remediation

Objective #5-Solve compound linear inequalities.

Compound inequality- Two inequalities that are combined into one statement by the word **and** or **or**.

The graph of an AND compound inequality is the **intersection** or *overlapping* region of the two parts of the inequality. This type of compound inequality is called a **conjunction**.

The other type of compound inequality using OR is called **disjunction**. A compound inequality involving OR has solution regions that are the **union** or the total of the solution regions of the separate parts of the inequality.

1. $-5 \leq 3x + 7 \leq 10$

Solve each inequality separately and then combine the results to form a compound inequality.

$-5 \leq 3x + 7$	AND	$3x + 7 \leq 10$
$-12 \leq 3x$		$3x \leq 3$
$-4 \leq x$		$x \leq 1$

The solution is $-4 \leq x \leq 1$

2. $2x + 1 \leq 13$ OR $x - 5 \geq -5$

$2x + 1 \leq 13$	OR	$x - 5 \geq -5$
$2x \leq 12$		$x \geq 0$
$x \leq 6$		

The solution is $x \leq 6$ OR $x \geq 0$

Solve the inequalities.

1. $2x > 8$ or $-3x \leq 15$

2. $2x + 1 \geq 5$ and $x - 8 < 2$

2. $1 + 2x > 5$ and $8 - x < 7$

4. $-1 < 2x - 1 < 11$

5. $2(x-2) < 4$ or $4 \leq 2(x-2)$

6. $-14 > 5x + 6 > -4$

7. $2x - 4 > -2$ or $2x - 6 < -2$

8. $-3 \leq 2x + 15 < 21$