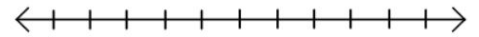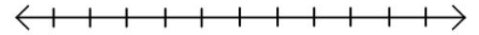# Lesson 1.3.6: Compound Inequalities

Targets:

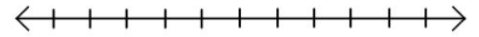1. I can solve and graph compound inequalities.

Warm Up

1. Solve $w^2 = 121$, for w. Graph the solution on a number line.

2. Solve $w^2 < 121$, for w. Graph the solution on a number line and write the solution set as a compound inequality.

3. Solve $w^2 \geq 121$, for w. Graph the solution on a number line and write the solution set as a compound inequality.
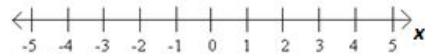

Practice 1

Consider the compound inequality: $-5 < x < 4$

   a. Rewrite the inequality as a compound statement of inequality.

   b. Write a sentence describing the possible values of x.

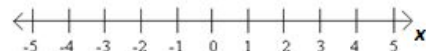   c. Graph the solution set on the number line:

Practice 2

Consider the compound inequality: $-5 < 2x + 1 < 4$

   a. Rewrite the inequality as a compound statement of inequality.

   b. Solve each inequality for x. Then write the solution to the compound inequality.

   c. Write a sentence describing the possible values of x.

   d. Graph the solution set on the number line:
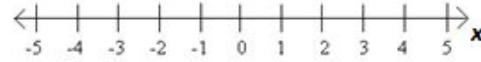
Practice 3

Given $x < -3$ *or* $x > -1$

    a. What must be true in order for the compound inequality to be a true statement?

                b. Write a sentence describing the possible values of x.
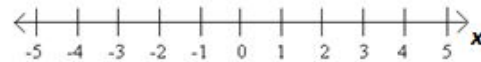
    c. Graph the solution set on the number:

Practice 4

Given $x + 4 < 6$ *or* $x - 1 > 3$

    a. Solve each inequality for x. Then write the solution to the compound inequality.

                b. Write a sentence describing the possible values of x.
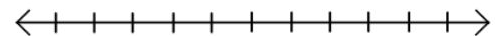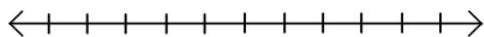
    d. Graph the solution set on the number:

Exit Ticket

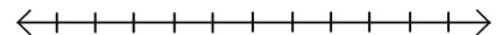Solve each compound inequality for x and graph the solution on a number line.

    a. $x + 6 < 8$ *and* $x - 1 > -1$
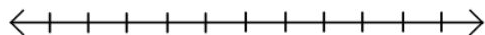
                b. $-1 \le 3 - 2x \le 10$

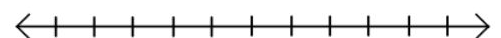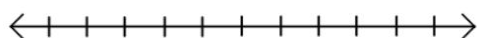   c. $5x + 1 < 0$ *or* $8 \le x - 5$

                d. $10 > 3x - 2$ *or* $x = 4$

    e. $x - 2 < 4$ *or* $x - 2 > 4$

                f. $x - 2 \le 4$ *and* $x - 2 \ge 4$

    g. $1 + x > -4$ *or* $3x - 6 < -12$