Review: Linear Inequalities and Absolute value inequalities

Linear Inequalities

Solve. Graph the solution on a number line.

$$11x + 3 - 7x + 4 \geq 6$$

$$4x \geq -1$$

$$x \geq -1/4$$

$$0 + 3 - 0 + 4 \geq 6$$

$$7 \geq 6 \checkmark$$

Solve. Graph the solution on a number line.

$$3 - 2(x - 4) > -1$$

$$3 - 2x + 8 > -1$$
$$-2x > -12$$
$$x < 6$$
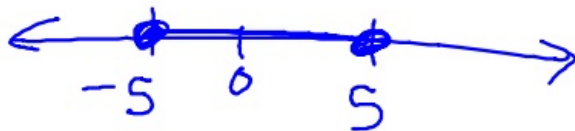
Solve. Graph the solution on a number line.

$$3(6x - 1) \leq 18 - 3x$$

Absolute Value Inequalities

Solve. Graph the solution on a number line.

$$|x| \leq 5$$

$$|x - 0| \leq 5$$

All numbers that have a distance from zero of 5 or less.

$$-5 \leq x \leq 5 \longleftarrow \quad x \geq -5 \text{ and } x \leq 5$$

Solve. Graph the solution on a number line.

or

$$|x+3| > 7$$

$$x + 3 > 7 \quad \text{or} \quad x + 3 < -7$$

$$x > 4 \quad \text{or} \quad x < -10$$

$-10 \qquad -3 \qquad 4$

Solve. Graph the solution on a number line.

and

$|x + 5| - 6 < -5$

$x + 5 < 1$ and $x + 5 > -1$

$x < -4$ $x > -6$

$-6 < x < -4$
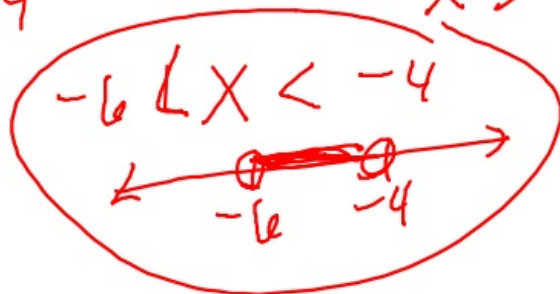
Solve. Graph the solution on a number line.

$$9|1+8x|-3 \geq 78$$