

Solving Absolute Value Inequalities



Overview of problems



Example Set: A

Solve and graph the inequality

$$|x| < 6$$



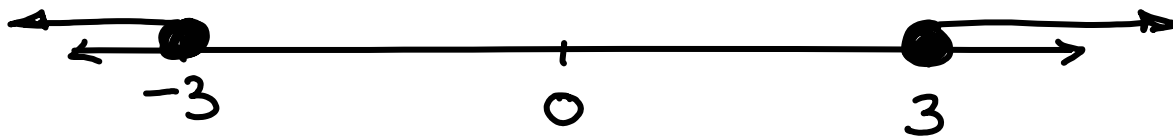
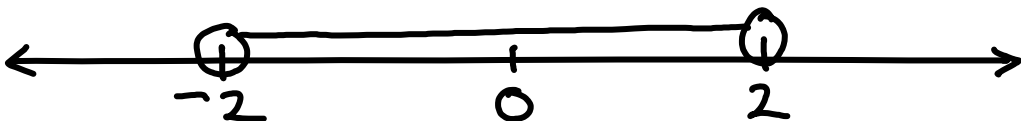
$$|x| \geq 9$$



$$|x - 1| < 7$$



Write an inequality for the graph





Example Set: B

Solve and graph the inequality

$$|x - 5| < 9$$



$$|2x + 3| < 11$$



$$\left|x - \frac{1}{2}\right| \leq 6$$



$$|3(x - 2)| + 4 < 16$$





Example Set: C

Solve and graph the inequality

$$|9 - x| \geq 15$$



$$|-3x - 1| > 14$$



$$\left| \frac{2}{5}x + 2 \right| \geq 8$$



$$|2(x + 4)| > 17$$



Solving Absolute Value Inequalities



Overview of problems- KEY



Example Set: A

Solve and graph the inequality

$$|x| < 6$$

$$-6 < x < 6$$



$$|x| \geq 9$$

$$-9 \geq x \geq 9$$



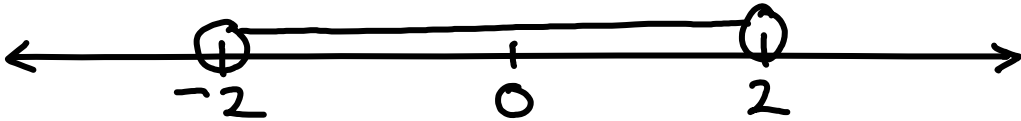
$$|x - 1| < 7$$

$$-6 < x < 8$$

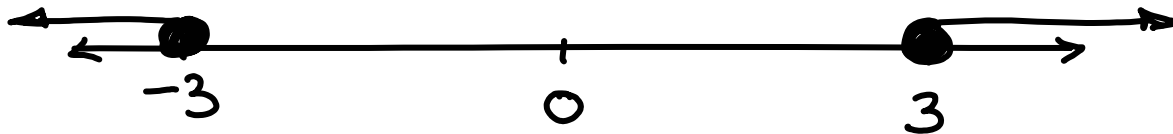


Write an inequality for the graph

$$-2 < x < 2 \quad |x| < 2$$



$$-3 \geq x \geq 3 \quad |x| \geq 3$$



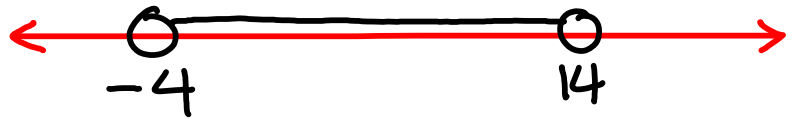


Example Set: B

Solve and graph the inequality

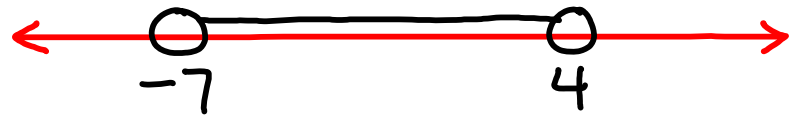
$$|x - 5| < 9$$

$$-4 < x < 14$$



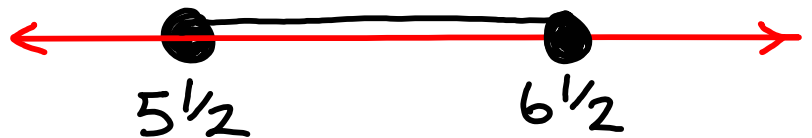
$$|2x + 3| < 11$$

$$-7 < x < 4$$



$$\left|x - \frac{1}{2}\right| \leq 6$$

$$-5\frac{1}{2} \leq x \leq 6\frac{1}{2}$$



$$|3(x - 2)| + 4 < 16$$

$$-2 < x < 6$$





Example Set: C

Solve and graph the inequality

$$|9 - x| \geq 15$$

$$24 \leq x \leq -6$$



$$|-3x - 1| > 14$$

$$\frac{13}{3} < x < -5$$



$$\left| \frac{2}{5}x + 2 \right| \geq 8$$

$$-25 \geq x \geq 15$$



$$|2(x + 4)| > 17$$

$$-\frac{25}{2} > x > \frac{9}{2}$$

