

Algebra 2

Ch. 1 Handout 1.5

Absolute Value Inequalities

Solving Absolute Value Inequalities

Solve and Graph the solution.

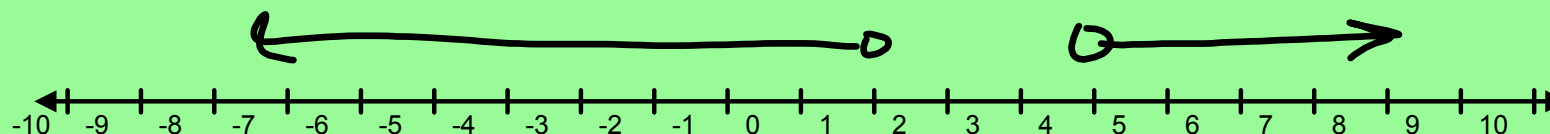
5. $|2x - 5| > 3$ OR "union"

$$\begin{aligned} -(2x - 5) &> 3 \\ -2x + 5 &> 3 \\ -5 &-5 \\ -2x &> -2 \\ \frac{-2x}{-2} &> \frac{-2}{-2} \\ x &< 1 \end{aligned}$$

OR

$$\begin{aligned} 2x - 5 &> 3 \\ +5 &+5 \\ 2x &> 8 \\ \frac{2x}{2} &> \frac{8}{2} \end{aligned}$$

OR $x > 4$



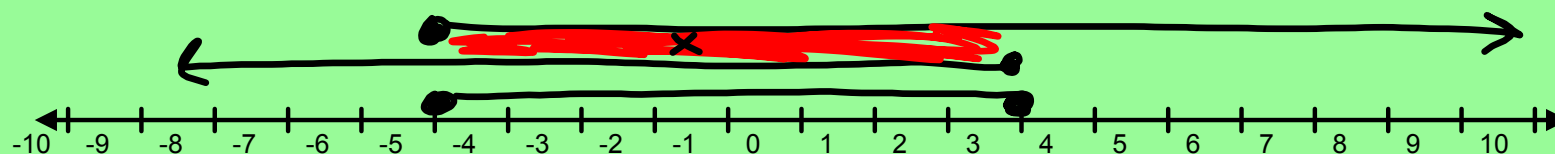
$$\{x < 1 \text{ OR } x > 4\}$$

$$6. \quad -2|x+1| + 5 \geq -3$$

$$\frac{-2|x+1|}{-2} \geq \frac{-8}{-2}$$

$$|x+1| \leq 4 \quad \text{And (Intersection)}$$

$$\begin{array}{ccc} \swarrow & \text{and} & \searrow \\ -(x+1) \leq 4 & & x+1 \leq 4 \\ -x-1 \leq 4 & & -1 \quad -1 \\ +1 \quad +1 & & \\ \underline{-x} \leq \underline{5} & & \\ \underline{x} \geq \underline{-5} & \text{and} & x \leq 3 \end{array}$$



$$\{-5 \leq x \leq 3\}$$

7. $|2x - 3| \geq 7$ OR (Intersection)

$$-(2x - 3) \geq 7$$

$$-2x + 3 \geq 7$$

$$\frac{-2x}{-2} \geq \frac{4}{-2}$$

$$x \leq -2$$

OR

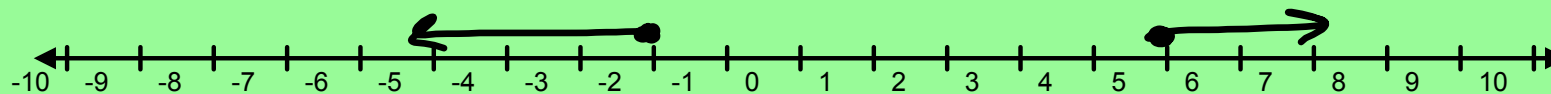
$$2x - 3 \geq 7$$

$$+3 \quad +3$$

$$\frac{2x}{2} \geq \frac{10}{2}$$

OR

$$x \geq 5$$



$$\{x \leq -2 \text{ OR } x \geq 5\}$$

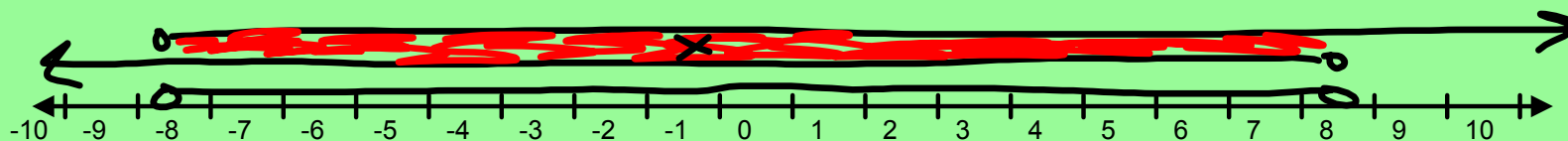
$$8. \quad |5z + 3| - 7 < 34$$

+7 +7

$$|5z + 3| < 41$$

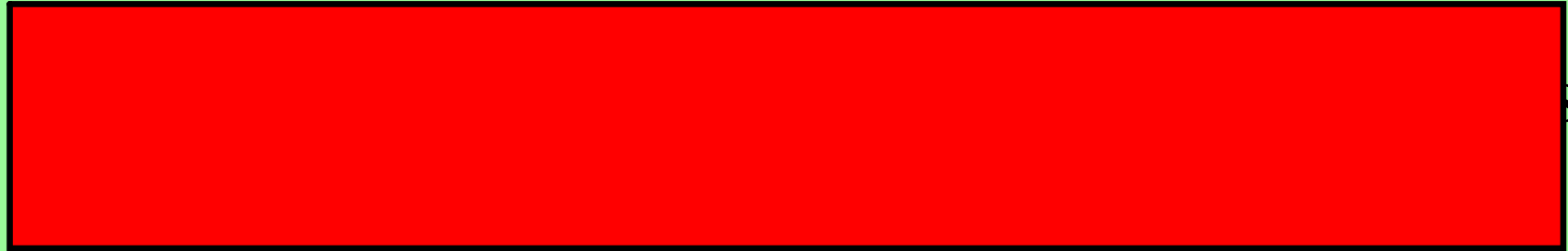
And (Intersection)

$$\begin{array}{ccc} \swarrow & \text{and} & \searrow \\ -(5z + 3) < 41 & & 5z + 3 < 41 \\ -5z - 3 < 41 & & -3 \quad -3 \\ +3 \quad +3 & & \\ \hline -5z < 44 & & 5z < 38 \\ \hline -5 & & 5 \\ \hline z > -8.8 & \text{and} & z < 7.6 \end{array}$$



$$\{-8.8 < x < 7.6\}$$

Assignments:



Day 2: 1.5 Pgs 36-38 16-27 all, 44-53 all