

Name : _____

Date : _____

Absolute Value Inequalities: Pre-Calculus

Solve the given inequalities. Graph the solution set in interval notation.

① $|3x - 4| \leq |x - 3|$

② $7 - 3|4x + 7| \leq -2$

③ $|x - 3| + |x + 2| < 13$

④ $|x + 3| > |2x - 1|$

⑤ $|3x - 3| + 5 > 14$

⑥ $|x - 1| \geq 6$

⑦ $|2x + 2| \leq 12$

⑧ $|x - 2| < 9$

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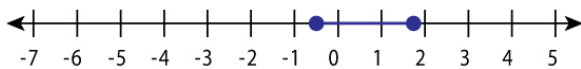
Absolute Value Inequalities: Pre-Calculus

Answers

① $|3x - 4| \leq |x - 3|$

$$\frac{1}{2} \leq x \leq \frac{7}{4}$$

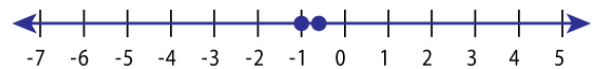
Interval Notation: $[\frac{1}{2}, \frac{7}{4}]$



② $7 - 3|4x + 7| \leq -2$

$$x \leq -\frac{5}{2} \text{ or } x \geq -1$$

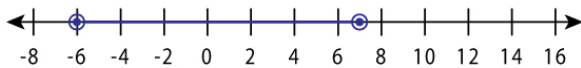
Interval Notation: $(-\infty, -\frac{5}{2}] \cup [-1, \infty)$



③ $|x - 3| + |x + 2| < 13$

$$-6 < x < 7$$

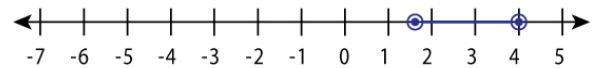
Interval Notation: $[-6, 7]$



④ $|x + 3| > |2x - 1|$

$$-\frac{2}{3} < x < 4$$

Interval Notation: $[-\frac{2}{3}, 4]$



⑤ $|3x - 3| + 5 > 14$

$$x < -2 \text{ or } x > 4$$

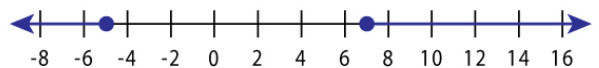
Interval Notation: $(-\infty, -2] \cup [4, \infty)$



⑥ $|x - 1| \geq 6$

$$x \leq -5 \text{ or } x \geq 7$$

Interval Notation: $(-\infty, -5] \cup [7, \infty)$



⑦ $|2x + 2| \leq 12$

$$-7 \leq x \leq 5$$

Interval Notation: $[-7, 5]$



⑧ $|x - 2| < 9$

$$-7 < x < 11$$

Interval Notation: $[-7, 11]$

