Exercise 29

For the following exercises, solve each inequality and write the solution in interval notation.

$$|x - 2| > 10$$

Solution

Remove the absolute value sign by breaking up the inequality into two; using the logical operators, "and" or "or," if you have $<$ or $>$, respectively; and solving for x.

$$|x - 2| > 10$$

$$x - 2 > 10 \quad \text{or} \quad x - 2 < -10$$

$$x > 12 \quad \text{or} \quad x < -8$$

Therefore, $x \in (-\infty, -8) \cup (12, \infty)$.