

Exercise 32

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

$$|x - 4| \geq 8$$

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 .

$$|x - 4| \geq 8$$

$$x - 4 \geq 8 \quad \text{or} \quad x - 4 \leq -8$$

$$x \geq 12 \quad \text{or} \quad x \leq -4$$

Therefore, $x \in (-\infty, -4] \cup [12, \infty)$.