

Exercise 33

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

$$|3x - 5| \geq 13$$

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 .

$$|3x - 5| \geq 13$$

$$3x - 5 \geq 13 \quad \text{or} \quad 3x - 5 \leq -13$$

$$3x \geq 18 \quad \text{or} \quad 3x \leq -8$$

$$x \geq 6 \quad \text{or} \quad x \leq -\frac{8}{3}$$

Therefore,

$$x \in \left(-\infty, -\frac{8}{3}\right] \cup [6, \infty).$$