

Exercise 71

For the following exercises, solve the inequality and express the solution using interval notation.

$$|3x - 2| < 7$$

Solution

Remove the absolute value sign by considering two different inequalities joined by “and.”

$$3x - 2 < 7 \quad \text{and} \quad 3x - 2 > -7$$

Combine the two conditions.

$$-7 < 3x - 2 < 7$$

Add 2 to all sides.

$$-5 < 3x < 9$$

Divide all sides by 3.

$$-\frac{5}{3} < x < 3$$

Therefore, in interval notation,

$$\left(-\frac{5}{3}, 3\right).$$