# Answer Key · Lesson 3.5: Absolute Value Inequalities

School Launch · Algebra I · Unit 3 · Worksheet A · for the parent

Key

**1.** $-9 < x < 7$

Solve and graph: $|x + 1| < 8$.

**2.** $x \le -3$ or $x \ge 5$

Solve and graph: $|x - 1| \ge 4$.

**3.** $-9 < x < -3$

Solve and graph: $|x + 6| < 3$.

**4.** $-\frac{9}{2} \le x \le \frac{5}{2}$

1. Less-than → between: $-7 \le 2x + 2 \le 7$
2. Subtract $2$: $-9 \le 2x \le 5$
3. Divide by $2$: $-\dfrac{9}{2} \le x \le \dfrac{5}{2}$

Solve and graph: $|2x + 2| \le 7$.

**5.** $\frac{3}{2} < x < \frac{9}{2}$

1. Less-than → between: $-3 < 2x - 6 < 3$
2. Subtract $-6$: $3 < 2x < 9$
3. Divide by $2$: $\dfrac{3}{2} < x < \dfrac{9}{2}$

Solve and graph: $|2x - 6| < 3$.

**6.** $-\frac{4}{3} \le x \le 2$

1. Less-than → between: $-5 \le 3x - 1 \le 5$
2. Subtract $-1$: $-4 \le 3x \le 6$
3. Divide by $3$: $-\dfrac{4}{3} \le x \le 2$

Solve and graph: $|3x - 1| \le 5$.

**7.** $x \le 0$ or $x \ge \frac{10}{3}$

1. Greater-than → or: $3x - 5 \le -5$ or $3x - 5 \ge 5$
2. Subtract $-5$: $3x \le 0$ or $3x \ge 10$
3. Divide by $3$: $x \le 0$ or $x \ge \dfrac{10}{3}$

Solve and graph: $|3x - 5| \ge 5$.

**8.** $-\frac{8}{3} < x < -\frac{4}{3}$

1. Less-than → between: $-2 < 3x + 6 < 2$
2. Subtract $6$: $-8 < 3x < -4$
3. Divide by $3$: $-\dfrac{8}{3} < x < -\dfrac{4}{3}$

Solve and graph: $|3x + 6| < 2$.

**9.** $-\frac{10}{3} < x < \frac{8}{3}$

1. Less-than → between: $-9 < 3x + 1 < 9$
2. Subtract $1$: $-10 < 3x < 8$
3. Divide by $3$: $-\dfrac{10}{3} < x < \dfrac{8}{3}$

Solve and graph: $|3x + 1| < 9$.

**10.** $x < -7$ or $x > 1$

1. Greater-than → or: $2x + 6 < -8$ or $2x + 6 > 8$
2. Subtract $6$: $2x < -14$ or $2x > 2$
3. Divide by $2$: $x < -7$ or $x > 1$

Solve and graph: $|2x + 6| > 8$.