

Steps for Success

Step I To help students master solving absolute-value equations and inequalities, consider using the following steps.

- Have students discuss the definitions of the vocabulary words *disjunction*, *conjunction*, and *absolute value*. Have them compare the English words and definitions to those in their native languages.
- Have students create word webs for the prefixes *con-* and *dis-*. Students can add meanings, illustrations, and words with the same prefix to each web to reinforce the meanings.

Step II In order for students to grasp the important concepts of the lesson, use the following procedures.

- Discuss different meanings of *absolute*, and compare them to how the word is used in this lesson. Allow students to make notes or illustrations regarding the word *absolute* to help them relate the word to mathematics.
- Students may be familiar with the word *compound* from other subject areas. Because *compound* implies combined, students may not recognize *or* as a compound inequality term. Reinforce both terms that create compound inequalities.

Step III Ask English Language Learners to complete the worksheet for this lesson.

- Point out that Example 1A in the student textbook is supported by Problem 1 on the worksheet. Help students recognize that there is not one answer, but a solutions set, or group.
- Point out that Example 3A in the student textbook is supported by Problem 2 on the worksheet. Help students understand that absolute-value inequalities form compound inequalities.
- Think and Discuss supports the problems on the worksheet.

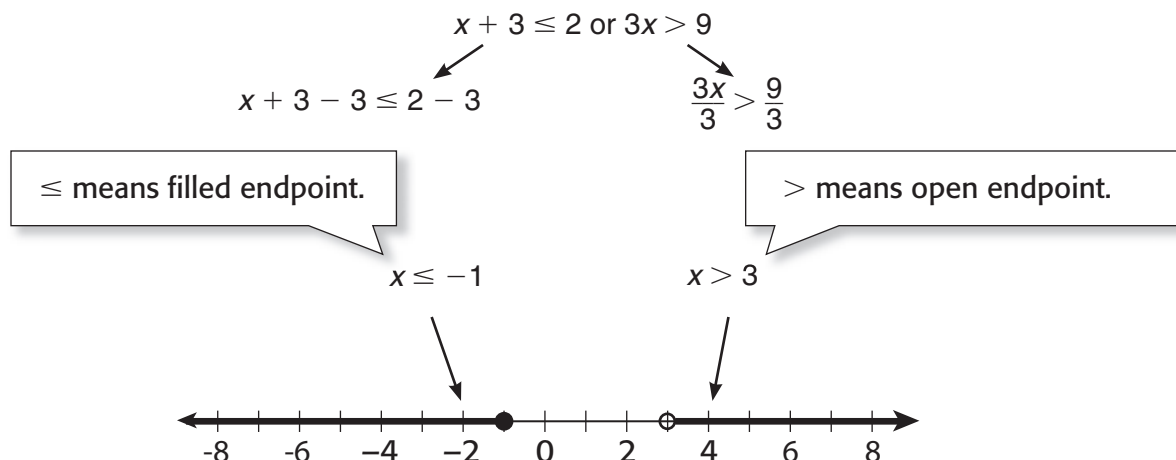
Making Connections

- Use a Language Arts textbook or reference book to show students that *and* and *or* are conjunctions that bring two other parts of speech together.

LESSON **2-8** **Success for English Language Learners**
Solve Absolute-Value Equations and Inequalities

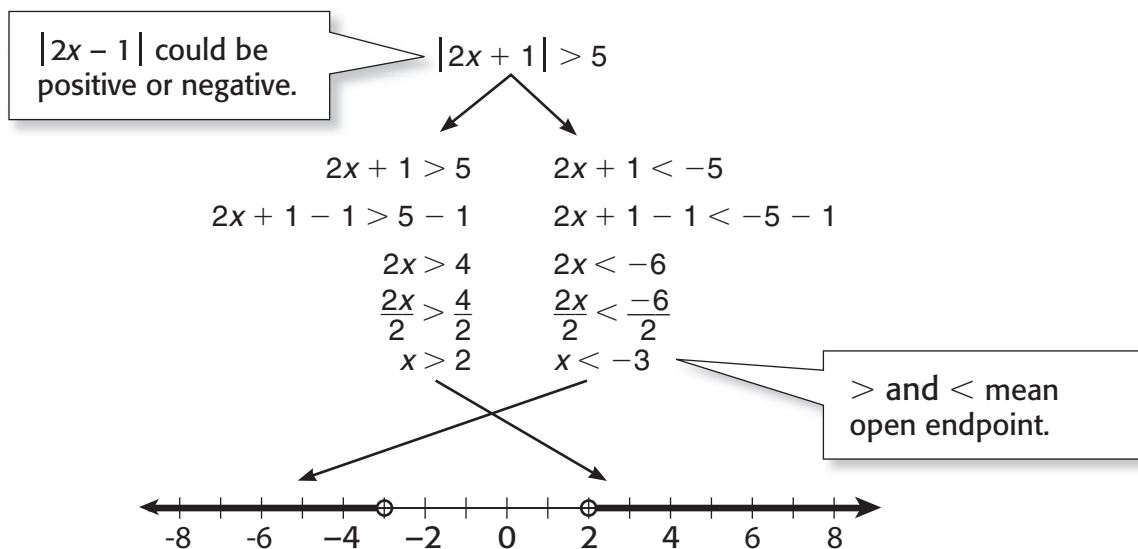
Problem 1

Solve the compound inequality. Then graph the solution set.



Problem 2

Solve the inequality. Then graph the solution set.



Think and Discuss

1. What would be different if Problem 1 said *and* instead of *or*?

2. How would $3A$ be written as a compound inequality?

Answer Key continued

Lesson 2-5

1. If the sign is “or equal to,” the boundary line is included.
2. The boundary would be vertical.

Lesson 2-6

1. $1f(x) = 2x - 1$
2. It would be a compression.

Lesson 2-7

1. It would have a greater negative slope.
2. Closer to -1 .

Lesson 2-8

1. There would be no solution.
2. $2x + 1 > 5$ OR $2x + 1 < -5$

Lesson 2-9

1. The vertex should be 2 units up.
2. The slope would increase times 30 and the vertex would be $(0, -60)$.

CHAPTER 3

Lesson 3-1

1. The lines will intersect at $(2, 4)$.
2. One solution, $(2, 4)$.
3. The slopes are equal.

Lesson 3-2

1. I should get the same answer.
2. Because only one point solves both equations simultaneously.
3. Because equations are added together to eliminate a variable.

Lesson 3-3

1. Quadrants II, III, and IV
2. No, because one of the boundary lines is not included in the region.
3. an obtuse angle

Lesson 3-4

1. It does not maximize the objective function.
2. If the last constraint is removed, the feasible region has vertices at $(0, 0)$, $(0, 300)$, and $(500, 0)$. C is maximized at $(500, 0)$.

Lesson 3-5

1. $(4, 0, 0)$, $(0, 3, 0)$, and $(0, 0, 6)$
2. The equation says that 3 times the x -coordinate plus 4 times the y -coordinate plus 2 times the z -coordinate equals 12 for any point on the plane.

Lesson 3-6

1. That is (z, x, y) , which is different from (x, y, z) because the coordinates are ordered.
2. It is independent because the system has one solution only.

CHAPTER 4

Lesson 4-1

1. The entry at c_{22} is 0.0075 and it is the cost per square inch of a 4-inch paper box.
2. c_{32}
3. 4×2

Lesson 4-2

1. Because the number of columns in the first matrix is the same as the number of rows in the second matrix.
2. The matrices of the products have different dimensions.

Lesson 4-3

1. The coordinates in the product matrix are those of the reflected image of JKL .
2. It is reflected across the y -axis.