

LEVEL

J



English Learner Support Guide

Introduction

Unit 3 Algebra

Unit at a Glance

In this unit, students will learn the vocabulary associated with **Number Worlds**, Level J, Algebra. Students will explore linear functions, the concept of slope, relationships among different lines, and nonlinear functions. Before beginning the unit, assess students' general knowledge of math vocabulary using the Individual Oral Assessment on page 57.

How Students Learn Vocabulary

Using visuals and manipulatives creates familiarity for English learners and has an immediate impact on learning language. For this unit, it will be helpful to have graph paper and blank coordinate grids on hand so students can visualize the reality of the vocabulary they will be learning about. Students will also benefit greatly from ample speaking practice. As much as possible, have students work with a partner or in groups of three to maximize opportunities for using new vocabulary.

Academic Vocabulary Taught in Unit 3

Week 1

coefficient A number in front of a variable. For example, in the expression $3x + 2$, 3 is a coefficient

constant A value that remains unchanged

equation A mathematical statement showing that one quantity or expression is equal to another quantity or expression

inverse operation An operation that undoes the results of another operation; for example, multiplication and division are inverse operations

variable A symbol that represents a quantity

Week 2

coordinate One of two numbers used to locate a point on a coordinate grid

ordered pair Two numbers in a specific order used to locate a point on a coordinate grid

slope A ratio that indicates the steepness of a line

Week 3

function A relationship that pairs every element of one set with an element of a second set; for example, a relationship that pairs any number with another number

ordered pair Two numbers written so that one is considered before the other; coordinates of points are written as ordered pairs, with the x-coordinate written first, and then the y-coordinate

variable A symbol that represents a quantity

Week 4

axes The two number lines of a graph that give the coordinates of points

linear function The relationship between two quantities which shows an increase or decrease at a constant rate

coefficient A number in front of a variable. For example, in the expression $3x + 2$, 3 is a coefficient; it tells the slope of a line.

slope A ratio that indicates the steepness of a line

Week 5

function A relationship that pairs every element of one set with an element of a second set; for example, a relationship that pairs any number with another number

slope A ratio that indicates the steepness of a line

ordered pair Two numbers written so that one is considered before the other; coordinates of points are written as ordered pairs, with the x-coordinate written first, and then the y-coordinate

variable A symbol that represents a quantity

Week 6

nonlinear function The relationship between two quantities which can be graphed as a curve

square number The product of a number that has been multiplied by itself

Unit 3 Individual Oral Assessment

Directions: Read each question to the student, and record his or her oral responses. Some questions have teacher directions. Teacher directions are indicated in italics. Allow students to use pencil and paper to work their responses.

- | | |
|--|--|
| <ol style="list-style-type: none">1. Is this an ordered pair? <i>Show student a coordinate grid.</i> no2. Is it a coordinate grid? yes3. How many quadrants does the coordinate grid have? four4. Point to an axis. Student should point to the x-axis or the y-axis.5. Is this a function? <i>Write $7x + 2 = y$ on a piece of paper.</i> yes6. Is 2 a coefficient? no7. Is this a graph of a linear function or a nonlinear function? <i>Show student a graph of a linear function.</i> linear function | <ol style="list-style-type: none">8. Does the line have slope? yes9. Are these inverse operations? <i>Show student a plus sign and a minus sign.</i> yes10. What is the coefficient? <i>Write $2x + 4 = y$ on a piece of paper.</i> 211. In the function $2x + 4 = y$, if x equals 2, what does y equal? <i>Show student the same function.</i> 812. What is the ordered pair if x equals 2 and y equals 8? <i>Point to the function for the previous item.</i> (2, 8)13. Can you graph the ordered pair on the coordinate grid? Student should plot a point at (2, 8). |
|--|--|

- **Beginning English Learners:** 0–3 of Questions 1–10 correct
- **Intermediate English Learners:** 4–7 of Questions 1–10 correct
- **Advanced English Learners:** 8–10 of Questions 1–10 correct
- If the student is able to answer Questions 11–13, then he or she can understand the mathematics taught in this unit but may still have difficulty with the academic vocabulary.

Use the Student Assessment Record, page 143, to record the assessment results.

Week 1

Objective

Students practice language associated with solving multi-step equations.

Vocabulary

- **coefficient** A number in front of a variable. For example, in the expression $3x + 2$, 3 is a coefficient
- **constant** A value that remains unchanged
- **equation** A mathematical statement showing that one quantity or expression is equal to another quantity or expression
- **inverse operation** An operation that undoes the results of another operation; for example, multiplication and division are inverse operations
- **variable** A symbol that represents a quantity

Materials

Program Materials

Vocabulary Cards: *variable*, *constant*,
equation, *inverse operations*

Additional Materials

magnets

1 WARM UP

Introduce each vocabulary word to students. Say the word aloud and have students repeat it.

After students have had some practice listening to the words, show them **Vocabulary Cards** *variable*, *constant*, *expression*, and *equation*. Have students read and say each word again. Then have students work with a partner to write two equations that include a variable and a constant. Have them trade with other students who should identify the variable(s), constant(s), and expression(s) in each and then solve.

2 ENGAGE

Review the vocabulary from the previous lesson. Write $2q + 4q = 48$ on the board.

- **Is this an expression or an equation? equation**
- **What is q ? a variable**
- **What is $2q$? an expression**
- **Is the number 2 a variable? no**

- **How do you know? because its value does not change**
- **What do we call a value that does not change? a constant**
- **Do we multiply it with a variable? yes**

Tell students that a number in front a variable is called a *coefficient*. Say *coefficient*, and have students repeat. Write *coefficient* on the board.

Return to the equation.

- **There are three expressions in the equation. What are they? $2q$, $4q$, and 48**
- **What is the same about $2q$ and $4q$? the variable**

Tell students that when the variables are the same, they are called *like terms*. Say *like terms*, and have students repeat. Label the *like terms* on the board.

Next tell students that like terms can be combined, or put together.

- **How can we combine $2q$ and $4q$? add them**
- **What is $2q + 4q$? $6q$**

Change the equation to $6q = 48$.

- **What do we do next? use inverse operations; divide both sides by 6**

Tell students that when they try to get the variable by itself, it is called *isolating the variable*.

Teacher Note

To illustrate the concept of isolating the variable, create a cluster of magnets on the board. Then put a lone magnet far from the others. Draw a box around the single magnet. Tell students that this magnet is isolated from the rest of the group. It is separated from the group. Say *isolate* and have students repeat. Write *isolate* on the board.

Progress Monitoring

If... students struggle with isolating the variable,

► **Then...** have them practice using inverse operations before you demonstrate the process again.

3 REFLECT

Extended Response

- Define *like terms*.
- Give an example of how equations are useful in the real world.
- What does isolate *the variable* mean?

Encourage student discussion of these questions and answers.

Progress Monitoring

If... students have mastered the lesson vocabulary,

► **Then...** organize students into pairs and have them create and solve equations using variables and constants.

4 ASSESS

Informal Assessment

Have students complete the following activity to make sure they understand the vocabulary. As students use each word:

1. Check understanding.
2. Correct errors.
3. Recheck for understanding.

- Write $3x - 2 = 10$ on the board. Have students identify an expression, the equation, a variable, and a constant.
- Have students define *inverse operation* and determine the inverse operations needed to solve the above equation.

For each word, use the following rubric to assign a score.

The student can repeat the word when prompted.
(1 point)

The student knows the word but does not know its meaning. (2 points)

The student has a vague idea of the word's meaning.
(3 points)

The student knows the word and can use the word in context. (4 points)

Week 2

Objective

Students will learn vocabulary associated with slope.

Vocabulary

- **coordinate** One of two numbers used to locate a point on a coordinate grid
- **ordered pair** Two numbers in a specific order used to locate a point on a coordinate grid
- **slope** A ratio that indicates the steepness of a line

Materials

Program Materials

Four-Quadrant Coordinate Grid,
p. 135

Additional Materials

- photos of hills or mountains
- ruler

1 WARM UP

Introduce each vocabulary word to students. Say the word aloud and have students repeat it.

Show photos of a variety of hills or mountains, perhaps of children sledding or people skiing, to illustrate gentler and steeper slopes. Ask students to talk about the photos. What is happening? Where was the photo taken? How do students connect with the photo? Point to the hill or mountain:

► What is this?

Tell students that it is a hill/mountain. The angle of the hill is called the *slope*. Say *slope* and have students repeat. Write *slope* on the board.

Draw a “hill” on the board. Make it look like a bell curve, with a beginning on the left and ending on the right. Point to the slope on the left side.

► Is this a slope? yes

Point to the top of the curve.

► Is this a slope? no

Point to the slope on the right side

► Is this a slope? yes

2 ENGAGE

Draw or display a four-quadrant coordinate grid on the board. Point out and label the *x*- and *y*-axes.

Have volunteers come to the board.

► Point to 4 on the *x*-axis.

Repeat for several students. Then tell students these are called the *x*-coordinates.

► Point to 3 on the *y*-axis.

Repeat for several students. Then tell students these are called the *y*-coordinates.

Challenge a student to find an *x*-coordinate and a *y*-coordinate and follow their respective lines until they meet at a point. Make a mark at the point and write the ordered pair in (*x*, *y*) format. Tell students that they have just located an *ordered pair*, which is an *x*-coordinate and a *y*-coordinate (in that order). Say *ordered pair*, and have students repeat. Write a label for the ordered pair on the board.

If time permits, dictate several ordered pairs and have students plot them on a grid on the Four-Quadrant Coordinate Grid worksheet. Make sure the points will create a straight line when connected; for example, (−2, −5), (−1, −3), (0, 1), (1, 3), (2, 5). After plotting the points, have students connect them by drawing a straight line with the help of a ruler.

Repeat for the following set of points: (−2, 2), (−1, 1), (0, 0), (1, −1), (2, −2).

Have students discuss what they notice about each line. Point out that the first line has positive slope. The second line has negative slope. Return to the drawing of the “hill” (bell curve). Tell students that (when moving from left to right) if they are going up the hill, it is positive slope. If they are going down, it’s negative.

Teacher Note

As you review or introduce terms such as *x*-axis, *y*-axis, *x*-coordinate, *y*-coordinate, and *ordered pair*, periodically test students’ comprehension. For example, point to the *x*-axis and say, *Is this the y-axis?* Have students answer. They may give thumbs up or down, say *yes* or *no*, or respond to your question in a complete sentence, depending on their language ability.

Progress Monitoring

If... students get confused about positive and negative slope,

► **Then...** connect the idea to a number line. If numbers are moving up or to the right, the numbers are going in a positive direction. If they are moving down or to the left, they are negative.

3 REFLECT

Extended Response

- **Look outside. Where do you see an example of slope?**
- **Can you think of other examples of slope?**
- **Why is the x-variable always listed first in an ordered pair?**

Encourage student discussion of these questions and answers.

Progress Monitoring

If... students need additional practice using coordinate grids,

► **Then...** use a city map with coordinates to find a point. Using a map of your school or municipality will give English learners additional practice recognizing and pronouncing street names where they live.

4

ASSESS

Informal Assessment

Have students complete the following activity to make sure they understand the vocabulary. As students use each word:

1. Check understanding.
2. Correct errors.
3. Recheck for understanding.

- Have students plot a set of ordered pairs on a coordinate grid.
- Have them connect the points to make a line.
- Have students identify the line as having positive or negative slope.

For each word, use the following rubric to assign a score.

The student can repeat the word when prompted.
(1 point)

The student knows the word but does not know its meaning. (2 points)

The student has a vague idea of the word's meaning.
(3 points)

The student knows the word and can use the word in context. (4 points)

Week 3

Objective

Students continue to work with functions, variables, and ordered pairs.

Vocabulary

- **function** A relationship that pairs every element of one set with an element of a second set; for example, a relationship that pairs any number with another number
- **ordered pair** Two numbers written so that one is considered before the other; coordinates of points are written as ordered pairs, with the x -coordinate written first, and then the y -coordinate
- **variable** A symbol that represents a quantity

Materials

Program Materials

Vocabulary Cards: *function*, *ordered pair*, *variable*

1 WARM UP

Introduce each vocabulary word to students. Say the word aloud and have students repeat it.

After students have practiced saying the words, show them **Vocabulary Cards** *function*, *ordered pair*, and *variable*.

As a brief activity, have students brainstorm a list of fruits and possible prices for each. Have them tell you how much five of each fruit would cost. Then discuss how much ten of each fruit would cost.

2 ENGAGE

Use one of the examples from the brainstorming Warm Up activity, and write the function on the board. For example, each banana costs ten cents. Write a function for the cost of bananas: $x \times 10\text{¢} = y\text{¢}$. Tell students that this is a *function* for the cost of bananas. Say *function*, and have students repeat the word. Write *function* on the board.

Help students discover that they can change the function by changing one of the numbers. As students answer the following questions, fill in a function table on the board.

- **What do I do to show how much five bananas will cost? Change the x to 5.**
- **How much are five bananas? 50¢**
- **What do I do to show how much seven bananas will cost? Change the x to 7.**
- **What about ten bananas? Change the x to 10.**

Repeat the question with other numbers until students discover that changing the number of bananas (x) changes the total cost of the bananas (y).

Tell students that the value of y changes when the value of x changes. Another word for “something that can change” is *variable*. Remind students that x and y are called *variables*.

Write (x, y) on the board.

- **What is this? an ordered pair**

Say *ordered pair*, and have students repeat the term. Write *ordered pair* on the board.

Have partners create ordered pairs using the data from the function table on the board.

Teacher Note

Students may struggle to think of examples and answers to the following Extended Response questions. Be prepared with a few examples of your own to get students started.

Progress Monitoring

- | | |
|---|---|
| <p>If... students need extra practice with the vocabulary and the mathematical concepts,</p> | <p>► Then... have students work with a partner to create functions and tables for the cost of other fruits on their lists.</p> |
|---|---|

3 REFLECT

Extended Response

- What does *variable* mean?
- How do we use functions every day?
- How might a salesperson use functions?

Encourage student discussion of these questions and answers.

Progress Monitoring

If... students seem to understand the mathematical idea, but are having trouble with appropriate use of vocabulary,

► **Then...** review the vocabulary with students individually.

4 ASSESS

Informal Assessment

Have students complete the following activity to make sure they understand the vocabulary. As students use each word:

1. Check understanding.
2. Correct errors.
3. Recheck for understanding.

- Have students select a value for the input and compute the output using the function rule $x \times 10 = y$.
- Have students write ordered pairs using the data and explain their process.

For each word, use the following rubric to assign a score.

The student can repeat the word when prompted.
(1 point)

The student knows the word but does not know its meaning. (2 points)

The student has a vague idea of the word's meaning.
(3 points)

The student knows the word and can use the word in context. (4 points)

Week 4

Objective

Students can understand the meanings of the terms *axes*, *linear function*, and *slope*.

Vocabulary

- **axes** The two number lines of a graph that give the coordinates of points
- **coefficient** A number in front of a variable. For example, in the expression $3x + 2$, 3 is a coefficient; it tells the slope of a line.
- **linear function** The relationship between two quantities which shows an increase or decrease at a constant rate
- **slope** A ratio that indicates the steepness of a line

Materials

Program Materials

- Vocabulary Card: *slope*
- Linear Functions and Slope, p. 136

Additional Materials

- blank coordinate grid
- graph paper

1 WARM UP

Introduce each vocabulary word to students. Say the word aloud and have students repeat it.

Review vocabulary from previous units and lessons. Write the following equation on the board: $4x + 2 = y$.

Point to the x .

► What is this called? a variable

Point to the y .

► What is this called? a variable

Point to the 2.

► What is this called? a constant

Point to the entire equation.

► What is this called? an equation

Repeat for other equations.

2 ENGAGE

Distribute graph paper to each student. Display a coordinate grid. Say *coordinate grid*, and have students repeat the term. Write *coordinate grid* on the board.

Point to the x -axis.

► What is this called? x -axis

Repeat for the y -axis. Write the equation $2x - 2 = y$ on the board.

► What is this? equation

Tell students that this type of equation is also called a *function*. Say *function*, and have students repeat. Point to the 2 in front of the x variable. Tell students that this is a *coefficient*. It tells the slope of the line. The greater the absolute value of the coefficient, the steeper the slope.

► If we substitute the value of 1 for x , what is the value of y ? 0

► If $x = 1$ and $y = 0$, what is the ordered pair? (1, 0)

Repeat for x values of 2, 3, 4, and 5. Plot the points on the coordinate grid. Have students plot the same points on their own graph paper.

Point out how plotted points can be connected with a straight line. Because of this, the function is called a *linear function*. Say *linear function*, and have students repeat the term. Write *linear function* on the board.

Point to the slope of the line you created on the graph. Tell students that the steepness of the line is its *slope*. Say *slope*, and have students repeat the word. Write *slope* on the board.

Distribute a copy of Linear Functions and Slope to each student. Organize students into groups of three to complete the worksheet. Review the worksheet as a group.

Teacher Note

When working in groups of three, have one student act as the "teacher" and monitor the activity and offer feedback.

Progress Monitoring

If... students have a hard time understanding slope,

► Then... tell them to think of slope as a hill. The greater the slope, the more difficult the hill is to climb.

3 REFLECT

Extended Response

- How do we use linear equations (function rules) every day?
- Can you think of a reason to write a linear function?
- Look outside. Where do you see an example of slope?
- Can you think of other examples of slope?
- Why is the x -variable always listed first in an ordered pair?

Encourage student discussion of these questions and answers.

Progress Monitoring

- | | |
|---|---|
| If... students don't have the language to fully participate in the discussion, | ► Then... have them formulate responses with a more advanced partner who can help them articulate the answer to the group. |
|---|---|

4 ASSESS

Informal Assessment

Have students complete the following activity to make sure they understand the vocabulary. As students use each word:

1. Check understanding.
2. Correct errors.
3. Recheck for understanding.

- Write the following linear function: $y = 2x + 1$.
- Have students substitute values for x and plot the function on a coordinate grid.
- Have them describe the slope.

For each word, use the following rubric to assign a score.

The student can repeat the word when prompted. (1 point)

The student knows the word but does not know its meaning. (2 points)

The student has a vague idea of the word's meaning. (3 points)

The student knows the word and can use the word in context. (4 points)

Week 5

Objective

Students can understand about the quadrants on the coordinate grid.

Vocabulary

- **function** A relationship that pairs every element of one set with an element of a second set; for example, a relationship that pairs any number with another number
- **ordered pair** Two numbers written so that one is considered before the other; coordinates of points are written as ordered pairs, with the x -coordinate written first, and then the y -coordinate
- **slope** A ratio that indicates the steepness of a line
- **variable** A symbol that represents a quantity

Materials

Program Materials

- Vocabulary Cards: *function*, *ordered pair*, *slope*, *variable*
- Four-Quadrant Coordinate Grid, p. 135

Additional Materials

- colored pencils
- straightedge, such as a ruler

1 WARM UP

Introduce each vocabulary word to students. Say the word aloud and have students repeat it.

After students have had some practice saying the words, show them **Vocabulary Cards** *function*, *ordered pair*, *slope*, and *variable*. Write a function and have students identify examples of the vocabulary words.

Have each student use a straightedge to draw any line on one coordinate grid on the Four-Quadrant Coordinate Grid worksheet. Then have partners examine each other's lines and determine whether the line has positive or negative slope.

2 ENGAGE

Have partners look at a coordinate grid on their worksheets.

- **Where are positive values for x ? Point.** Students should point to the right of the y -axis.
- **Where are positive values for y ? Point.** Students should point to the area above the y -axis.
- **Where are the positive values for both x and y ? Point.** Students should point to Quadrant I, the upper right quadrant.

Tell students this is Quadrant I. Both x and y values are positive. Have students color Quadrant I yellow.

Repeat the process for the other quadrants. For each quadrant, have students color and label as follows:

Quadrant I: Label: *Quadrant I* (+, +); color: yellow

Quadrant II: Label: *Quadrant II* (−, +); color: green

Quadrant III: Label: *Quadrant III* (−, −); color: red

Quadrant IV: Label: *Quadrant IV* (+, −); color: blue

Teacher Note

As you dictate the following points, have students plot them on one of the grids on the Four-Quadrant Coordinate Grid worksheet:

(4, 4), (−2, 7), (−5, −5), (1, 9), (−2, −6), (6, −3)

Have students use the following sentence frame to describe each point:

- The ordered pair is _____.
- It is located in Quadrant _____.

Progress Monitoring

If... students can't produce the complete sentence,

► **Then...** say the sentence for them, but let them fill in the blanks.

3 REFLECT

Extended Response

- What is a quadrant?
- You know what *quad* means. Do you know any prefixes or word parts that mean “two” or “three”?
- What do we do with a coefficient?

Encourage student discussion of these questions and answers.

Progress Monitoring

- If...** some students tend to monopolize the conversation,
- **Then...** have them act as the “teacher” and guide the discussion without contributing all the answers.

4 ASSESS

Informal Assessment

Have students complete the following activity to make sure they understand the vocabulary. As students use each word:

1. Check understanding.
2. Correct errors.
3. Recheck for understanding.

- Show students a four-quadrant coordinate grid. Have them point to and label each quadrant as I, II, III, and IV.
- Have students describe the values of x and y in one of the quadrants. Are the values positive or negative?

For each word, use the following rubric to assign a score.

The student can repeat the word when prompted.
(1 point)

The student knows the word but does not know its meaning. (2 points)

The student has a vague idea of the word’s meaning.
(3 points)

The student knows the word and can use the word in context. (4 points)

Week 6

Objective

Students will review the meaning of *square number* and will be introduced to the nonlinear functions and their graphs.

Vocabulary

- **nonlinear function** The relationship between two quantities which can be graphed as a curve
- **square number** The product of a number that has been multiplied by itself

Materials

Program Materials

Vocabulary Cards: *square number, base, exponent*

1 WARM UP

Introduce each vocabulary word to students. Say the word aloud and have students repeat it.

Show students the *square number, base, and exponent Vocabulary Cards*. Have volunteers write an example of a base and exponent and have another student write an example of an expression involving a square or square root.

2 ENGAGE

Write the function $x + 2 = y$ on the board. Give partners three minutes to create ordered pairs for the values of x from -3 to $+3$.

Plot students' answers on a coordinate grid on the board. Have students comment on the graph of the function. They will probably note that the resulting line is straight. Point to the function again.

► Is this a function? yes

Point to the straight line created by the function.

► What type of function is it? linear function

Write the function $x^2 = y$ on the board. Give partners three minutes to create ordered pairs for the values of x from -3 to $+3$.

Plot students' answers on a coordinate grid on the board. Have students comment on the graph of the function. They will probably note that the resulting line is not straight. Point to the function again.

► Is this a function? yes

Point to the curved line created by the function.

► Is this a linear function? no

Tell students that a function whose graph is not a straight line is called a *nonlinear function*. Say *nonlinear function*, and have students repeat the term. Write *nonlinear function* on the board.

Students may be interested to know the name of this new curve they've created on the graph. Tell them it is a *parabola*. Say *parabola* and have them repeat. Write the word on the board. Ask what things they see in the real world that are like parabolas.

Teacher Note

Write *nonlinear* on the board. Ask students to tell what they know about this word. They might mention the meaning they have just learned. Some may point out that it looks similar to the word *linear*. Circle the prefix *non-* and underline *linear*. Have students clarify what *linear* means: "straight." Have a volunteer tell what *non-* means: "not." Tell students that they can use their knowledge about word parts to decipher the meaning of words like *nonlinear*: "not straight."

Using Student Worksheets

After students complete the activity, help them complete the appropriate Practice for their levels of English development.

Beginning, p. 70

Intermediate, p. 71

Advanced, p. 72

3 REFLECT

Extended Response

► Explain the meaning of *nonlinear*.

► What does *nonsense* mean? How do you know?

► How is a parabola like an umbrella?

Encourage student discussion of these questions and answers.

Informal Assessment

Have students complete the following activity to make sure they understand the vocabulary. As students use each word:

1. Check understanding.
2. Correct errors.
3. Recheck for understanding.

- Write $4x - 5 = 31$. Have students identify it as either a linear or nonlinear function.
- Repeat for $2x^2 - 1 = y$.

For each word, use the following rubric to assign a score.

The student can repeat the word when prompted. (1 point)

The student knows the word but does not know its meaning. (2 points)

The student has a vague idea of the word's meaning. (3 points)

The student knows the word and can use the word in context. (4 points)

Final Assessment

Distribute a copy of the Final Assessment, p. 73, to each student. Use the following rubric to determine each student's level of English development.

Name _____ Date _____

Final Assessment

Use a vocabulary word to complete each sentence.

1. The product of a number that has been multiplied by itself is a _____.
2. A(n) _____ has a graph that is a straight line.
3. The graph of a(n) _____ is a curved line.
4. An ordered pair is the _____ and _____ of a point on a graph.

Final Assessment, p. 73

- **Beginning English Learners:** 0–3 of Questions 1–8 correct
- **Intermediate English Learners:** 4–6 of Questions 1–8 correct
- **Advanced English Learners:** 7–8 of Questions 1–8 correct

Use the Student Assessment Record, page 143, to record the assessment results.

Practice 1 Beginning

Answer true or false.

$$3x + 5 = 14$$

1. The variable is x _____.
 2. The coefficient is 14 _____.
 3. 5 is a constant _____.
 4. This is a linear function _____.
- $$x^2 - 3 = y$$
5. y is a variable _____.
 6. This is a linear function _____.
 7. There is no coefficient _____.
 8. 3 is a variable _____.

70 Level J - Practice 1 English Learner Support Guide

Practice 1, Beginning, p. 70

Practice 2 Intermediate

Use a word from the box to complete each sentence.

coefficient	slope	variable	inverse operations
linear function	nonlinear function	ordered pair	square number

1. _____ is a ratio that tells how steep a line is.
2. A(n) _____ has a graph that is a straight line.
3. Multiplication and division are _____.
4. A(n) _____ is the x - and y -coordinates of a point on a graph.
5. A(n) _____ is a symbol that represents a number or quantity.
6. The graph of a(n) _____ is a curved line.
7. The product of a number that has been multiplied by itself is a _____.
8. The number in front of a variable that tells the slope is a(n) _____.

Algebra Level J - Practice 2 71

Practice 2, Intermediate, p. 71

Practice 3 Advanced

Write a sentence to describe each term.

1. constant _____
2. variable _____
3. slope _____
4. coefficient _____
5. linear function _____
6. nonlinear function _____
7. ordered pair _____
8. inverse operations _____

72 Level J - Practice 3 English Learner Support Guide

Practice 3, Advanced, p. 72

Name _____ Date _____

Practice 1 Beginning**Answer true or false.**

$$3x + 5 = 14$$

1. The variable is x . _____
2. The coefficient is 14. _____
3. 5 is a constant. _____
4. This is a linear function. _____

$$x^2 - 3 = y$$

5. y is a variable. _____
6. This is a linear function. _____
7. There is no coefficient. _____
8. 3 is a variable. _____

Practice 2 Intermediate

Use a word from the box to complete each sentence.

coefficient	slope	variable	inverse operations
linear function	nonlinear function	ordered pair	square number

- _____ is a ratio that tells how steep a line is.
- A(n) _____ has a graph that is a straight line.
- Multiplication and division are _____.
- A(n) _____ is the x- and y-coordinates of a point on a graph.
- A(n) _____ is a symbol that represents a number or quantity.
- The graph of a(n) _____ is a curved line.
- The product of a number that has been multiplied by itself is a _____.
- The number in front of a variable that tells the slope is a(n) _____.

Name _____ Date _____

Practice 3 Advanced**Write** a sentence to describe each term.**1.** constant _____

2. variable _____

3. slope _____

4. coefficient _____

5. linear function _____

6. nonlinear function _____

7. ordered pair _____

8. inverse operations _____

Name _____ Date _____

UNIT

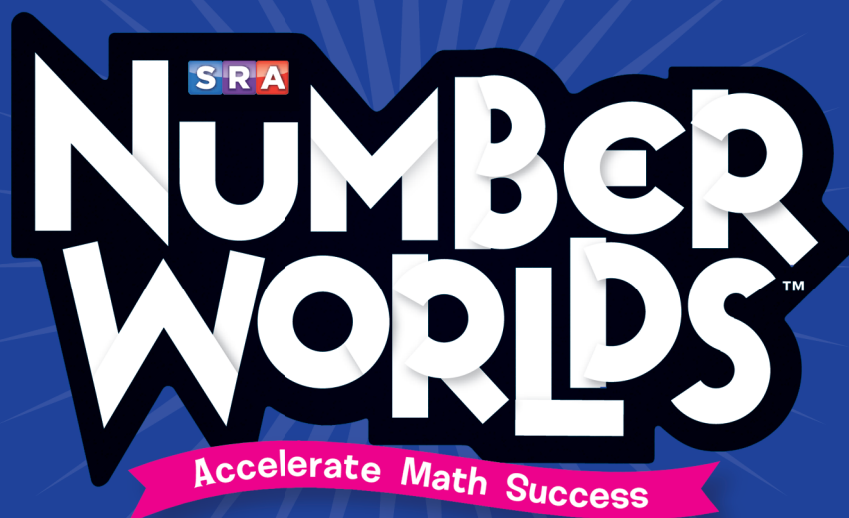
3

Final Assessment

Use a vocabulary word to complete each sentence.

1. The product of a number that has been multiplied by itself is a _____.
2. A(n) _____ has a graph that is a straight line.
3. The graph of a(n) _____ is a curved line.
4. An ordered pair is the _____ and _____ of a point on a graph.
5. A(n) _____ is a symbol that represents a number or quantity.
6. Multiplication and division are _____.
7. _____ is a ratio that tells how steep a line is.
8. The number in front of a variable that tells the slope is a(n) _____.

LEVEL



English Learner Support Guide

Lessons, strategies, and resources
to support English Learners in the
Number Worlds program

**Mc
Graw
Hill**
Education

MHID 0-02-136133-9
978-0-02-136133-5



EAN

9 780021 361335

99701

J