

## KEY CONCEPT OVERVIEW

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In this topic, students write and evaluate algebraic expressions involving all four operations—addition, subtraction, multiplication, and division—as well as exponents. Working with word problems, students determine and define the variable. Students also substitute a given value (number) for the variable in order to evaluate the expression. For example, given the phrase “Nathalia wrote 3 more stories than Alan,” students can determine the variable,  $s$ , and define  $s$  as the number of stories Alan wrote. The expression that represents how many stories Nathalia wrote is  $s + 3$ . If Alan wrote 4 stories, students can substitute 4 for  $s$ , resulting in the expression  $4 + 3$ . Therefore, Nathalia wrote 7 stories.

You can expect to see homework that asks your child to do the following:

- Read a word problem and identify and define the unknown quantity, or variable. Write an addition or subtraction expression that matches the problem, and then evaluate the expression when given a value for the variable.
- Given information, create a table to show the relationship between two quantities. Analyze the data, noticing patterns, and then write the expression that shows this relationship. Finally, evaluate the expression given values for the variables.

## SAMPLE PROBLEMS (From Lesson 19)

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Noah and Carter are collecting box tops for their school. They each bring in one box top per day, starting on the first day of school. However, Carter had a head start because his aunt sent him 15 box tops before school began. Noah’s grandma saved 10 box tops, and Noah added those on his first day.

- a. Fill in the missing values that indicate the total number of box tops each boy brought to school.

School Day	Number of Box Tops Noah Has	Number of Box Tops Carter Has
1	11	16
2	12	17
3	13	18
4	14	19
5	15	20

- b. If  $D$  represents the number of days since the new school year began, how many box tops will Noah have brought to school on day  $D$ ?

$D + 10$

- c. On day  $D$  of school, how many box tops will Carter have brought to school?

$D + 15$

**SAMPLE PROBLEMS** *(continued)* 

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d. On day 10 of school, how many box tops will Noah have brought to school?

**$10 + 10 = 20$ . On day 10, Noah will have brought in 20 box tops.**

e. On day 10 of school, how many box tops will Carter have brought to school?

**$10 + 15 = 25$ . On day 10, Carter will have brought in 25 box tops.**

Additional sample problems with detailed answer steps are found in the *Eureka Math Homework Helpers* books. Learn more at [GreatMinds.org](http://GreatMinds.org).

**HOW YOU CAN HELP AT HOME** 

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You can help at home in many ways. Here are some tips to help you get started.

- Darcy charges \$9 for each lawn she mows. With your child, write an expression describing Darcy’s earnings for mowing  $m$  lawns ( $9m$ ). How much will Darcy earn if she mows 2, 3, 4, 6, 10, and 15 lawns? (She will earn \$18, \$27, \$36, \$54, \$90, and \$135, respectively.)
- With your child, create a situation that can be described by the expression  $7x + 15$ . For example, Julia charges \$7 an hour for babysitting services and \$15 for gas to and from the client’s house. Define the variable (i.e., what does  $x$  mean?), choose a value for  $x$ , and evaluate the expression. What does that value mean in the context of the situation? In the example described, let  $x$  represent the number of hours Julia babysat, and let  $x$  have a value of 3. Then  $7 \cdot 3 + 15$  is the expression that tells how much Julia earned. She earned \$36 in 3 hours.