

# DUVAL Math

## Parent Tips

### Multi-Digit Multiplication and Division

In this Module, students will start with applying multiplication and division to contexts such as area and perimeter to set the stage for multiplication and division of multi-digit whole numbers. Students will practice various ways to model these problems, moving from concrete to abstract.

**Before This Module:** Students will extend place value work, practicing using metric measurements for length, mass and capacity.

**What Comes After This Module:** Students will explore fraction equivalence, working for the first time with mixed numbers. Students will solve to find equivalent fractions, compare and order fractions, and add and subtract fractions using familiar models to support their conceptual understanding.

Fourth Grade,  
Module 3

#### Special points of interest:

- ✓ Words to Know
- ✓ Multiplicative Comparison word problems
- ✓ Multi-digit multiplication and division
- ✓ Mathematical Practices
- ✓ Want to help with homework?

### Words to Know

#### **Number Properties:**

##### **Associative Property:**

$$3 \times (4 \times 8) = (3 \times 4) \times 8$$

##### **Distributive Property:**

$$6 \times (3 + 5) = (6 \times 3) + (6 \times 5)$$

##### **Partial Product:**

$$24 \times 6 = (20 \times 6) + (4 \times 6)$$

**Prime Number:** positive integer only having factors of one and itself

**Composite Number:** positive integer having three or more factors

**Divisor:** the number by which another number is divided

**Remainder:** the number left over when one integer is divided by another

**Algorithm:** steps for base ten computations with the four operations

**Area:** the amount of two-dimensional space in a bounded region

**Perimeter:** length of a continuous line around a geometric figure

### Questions?

Mrs. Wendy Dobson

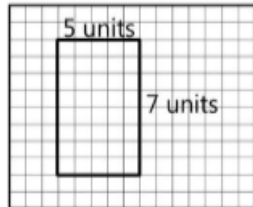
Supervisor, Mathematics K-5

[dobsonw@duvalschools.org](mailto:dobsonw@duvalschools.org)

# Multiplicative Comparison Word Problems

## Perimeter and Area Word Problems

The rectangle below is 5 units wide by 7 units long.



Perimeter:

$$P = 2 \times (l + w)$$

$$P = 2 \times (7 + 5)$$

$$P = 2 \times (12)$$

$$P = 24$$

Area:

$$A = l \times w$$

$$A = 7 \times 5$$

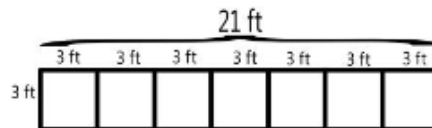
$$A = 35 \text{ square units}$$

## Knowing the formula for Area and Perimeter

- **Area** =  $L \times W$
- **Perimeter** =  $2(L + W)$
- L (length)
- W (width)
- The **area** is always in square units
- **Perimeter** is the distance around the figure (the rim of the figure)

The area model encourages students to think about each part of a number as they multiply.

The banner on the Homecoming float was 3 feet long. It is 7 times as wide as it is long. Draw the diagram and label its dimensions. What is the perimeter?



$$P = 2 \times (l + w)$$

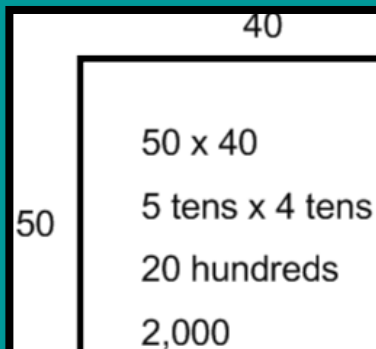
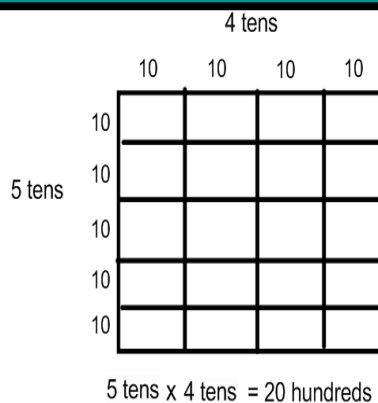
$$P = 2 \times (21 + 3)$$

$$P = 2 \times (24)$$

$$P = 48 \text{ ft}$$

Use an area model to represent  $50 \times 40$

Example from (Lesson 6 Module 3)



# Multi-Digit Multiplication and Division

## Multiplication Word Problems

The table below shows the cost of party favors found in 1 party bag. Each guest receives 2 balloons, 3 lollipops, and 1 bracelet. What is the total cost for 8 guests?

Item	Cost
1 balloon	24¢
1 lollipop	12¢
1 bracelet	34¢

One bag = \$1.18

2 balloons	$24¢ \times 2 = 48¢$
3 lollipops	$12¢ \times 3 = 36¢$
1 bracelet	$34¢ \times 1 = 34¢$

Step 1



$\$1.18$   

48	36	34
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$48 + 36 + 34$   
 $48 + 70 = 118$

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?

The total cost for 8 party bags is \$9.44

$$\begin{array}{r} 118 \\ \times 8 \\ \hline 944 \end{array}$$

Step 2



## Modeling a Division Problem with Remainders

## Represent Using Standard Division

		quotient	
	3		
group	5	16	total
	-15		$5 \times 3$
	1		remainder
		3 r1	answer

## Standards for Mathematical Practice

### Mathematical Practices Addressed in this Module:

**MP.2 Reason abstractly and quantitatively.** Students solve multi-step word problems using the four operations by writing equations with a letter standing in for the unknown quantity.

**MP.4 Model with mathematics.** Students apply their understanding of place value to create area models and rectangular arrays when performing multi-digit multiplication and division. They use these models to illustrate and explain calculations.

**MP.5 Use appropriate tools strategically.** Students use mental computation and estimation strategies to assess the reasonableness of their answers when solving multi-step word problems. They draw and label bar and area models to solve problems as part of the RDW process. Additionally, students select an appropriate place value strategy when solving multiplication and division problems.

**MP.8 Look for and express regularity in repeated reasoning.** Students express the regularity they notice in repeated reasoning when they apply place value strategies in solving multiplication and division problems. They move systematically through the place values, decomposing or composing units as necessary, applying the same reasoning to each successive unit.

Want to help with homework?

A great resource can be found following the link below:

[http://www.oakdale.k12.ca.us/ENY\\_Hmwk\\_Intro\\_math](http://www.oakdale.k12.ca.us/ENY_Hmwk_Intro_math)

The screenshot shows a web browser window with the URL [www.oakdale.k12.ca.us/ENY\\_Hmwk\\_Intro\\_math](http://www.oakdale.k12.ca.us/ENY_Hmwk_Intro_math). The browser's address bar and tabs are visible at the top. The website header features the OJUSD logo and a navigation menu with links for Home, District, Schools, Staff, Parents & Students, Board of Trustees, and Community. Below the header is a search bar with a 'Go' button. The main content area is titled 'Math Homework Help' and includes introductory text about Engage New York (ENY) Homework. It provides instructions on how to navigate the site: 'Begin by clicking on your student's GRADE, next select the MODULE, and finally select the LESSON.' Below this text is a grid of buttons for selecting grade levels: PK, K, 1st, 2nd, 3rd, 4th, 5th, 6th, 7th, and 8th. The current selection is Grade 3, Lesson 1, Module 1, which is highlighted in a grey box.