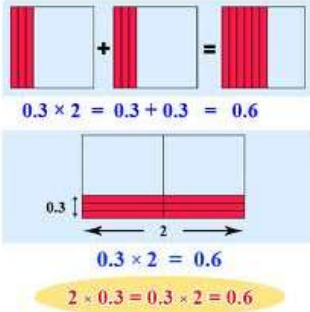
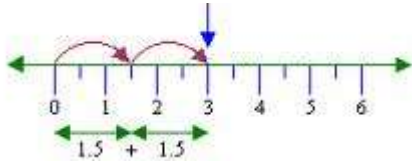


"I Can" Help My Student	Important Understandings and Concepts												
<ul style="list-style-type: none"> <li>I can explain the powers of ten. (5.NBT.2)</li> <li>I can explain the pattern in placement of a decimal point using a power of ten. (5.NBT.2)</li> <li>I can add, subtract, multiply, and divide decimals to the hundredths using various methods. (5.NBT.7)</li> <li>I can explain how the answer was found. (5.NBT.7)</li> </ul>	<p><b>What should my student already know before I begin...</b></p> <ul style="list-style-type: none"> <li>Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that <math>8 \times 5 = 40</math>, one knows <math>40 \div 5 = 8</math>) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.</li> <li>Fluently add and subtract within 1000, using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.</li> <li>In fourth grade, student should understand decimal notation for fractions, and compare decimal fractions.</li> <li>Use decimal notation for fractions with denominators 10 or 100.</li> </ul>												
<p><b>Words to Know</b></p> <p><b>base ten system:</b> a number system based on powers of ten; also known as the decimal system.</p> <p><b>decimal:</b> a number that can be written in expanded form using powers of ten or decimal fractions.</p> <p><b>decimal point:</b> the point that separates the whole number part and decimal part of a number.</p> <p><b>division notation:</b> <math>\frac{a}{b}</math>, <math>a/b</math>, <math>a \div b</math></p> <p><b>equal to (=):</b> having the same value.</p> <p><b>exponents:</b> how many times a number is to be used in a multiplication sentence</p> <p><b>greater than (&gt;):</b> used to compare two numbers when the first number is <b>larger</b> than the second number.</p> <p><b>less than (&lt;):</b> used to compare two numbers when the first number is <b>smaller</b> than the second number.</p> <p><b>multiplication symbols:</b> <math>\times</math>, <math>*</math>, <math>()</math>, <math>\cdot</math></p> <p><b>operation notations:</b> symbols to use for adding, subtracting, multiplying, and dividing</p> <p><b>place value:</b> the value of a digit in any number., e.g. the place of the 9 in the following figure is hundredths. The value of the 9 is 9 hundredths, 9/100, or 0.09.</p>	<p><b>Learning at a Glance</b></p> <p>The following two models represent multiplication of decimals and whole numbers as repeated addition in an area model and on a number line. These representations are the same for properties of operations for whole numbers.</p> <div style="display: flex; justify-content: space-around;"> <div data-bbox="926 751 1234 1060">  <p>Area model showing two rectangles of width 0.3 and height 1, combined to form a larger rectangle of width 0.6 and height 1. Equations: <math>0.3 \times 2 = 0.3 + 0.3 = 0.6</math> and <math>0.3 \times 2 = 0.6</math>.</p> </div> <div data-bbox="1371 833 1780 995">  <p>Number line from 0 to 6 with jumps of 1.5. Equations: <math>1.5 + 1.5 = 3</math> and <math>1.5 \times 2 = 3</math>.</p> </div> </div> <p>For example, students can view <math>7 \div 0.1</math> as asking how many tenths are in 7. Because it takes 10 tenths to make 1, it takes 7 times as many tenths to make 7, so <math>7 \div 0.1 = 7 \times 10 = 70</math>. [Connected to 5.NF.7b Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions. Interpret division of a whole number by a unit fraction, and compute such quotients.]</p> <div style="background-color: #e0f0ff; padding: 5px; margin-top: 10px;"> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: right;"><math>\times 10</math></td> <td style="text-align: center;"><math>0.644 \div 0.023</math></td> <td style="text-align: left;"><math>\times 10 = 28</math></td> </tr> <tr> <td style="text-align: right;"><math>\times 10</math></td> <td style="text-align: center;"><math>6.44 \div 0.23</math></td> <td style="text-align: left;"><math>\times 10 = 28</math></td> </tr> <tr> <td style="text-align: right;"><math>\times 10</math></td> <td style="text-align: center;"><math>64.4 \div 2.3</math></td> <td style="text-align: left;"><math>\times 10 = 28</math></td> </tr> <tr> <td style="text-align: right;"><math>\times 10</math></td> <td style="text-align: center;"><math>644 \div 23</math></td> <td style="text-align: left;"><math>\times 10 = 28</math></td> </tr> </table> </div>	$\times 10$	$0.644 \div 0.023$	$\times 10 = 28$	$\times 10$	$6.44 \div 0.23$	$\times 10 = 28$	$\times 10$	$64.4 \div 2.3$	$\times 10 = 28$	$\times 10$	$644 \div 23$	$\times 10 = 28$
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### How Can You Help Your Student?

#### Interactive Learning Lessons

Your student can watch the videos alone or with you. Have your student take notes while watching. Allow them to watch as many times as needed.

LearnZillion: [Multiply whole number and decimals using exponents](#)

LearnZillion: [Multiplying Decimals to Hundredths](#)

LearnZillion: [Divide whole numbers by powers of ten](#)

LearnZillion: [Divide whole numbers by powers of ten](#)

LearnZillion: [Whole number exponents to denote powers of ten](#)

LearnZillion: [Compare numbers written in exponential notation](#)

#### Interactive Learning Games

[Multiplying Decimals Choice Board](#)

[Decimal Jeopardy Game with all decimal operations. \(Skill, Knowledge\)](#)

[Decimal Race to Zero](#)

[Decimal Drop](#)

Playing games is a wonderful way to practice skills at home in a fun environment. *Stack-n-Pack* books contain several math games covering math concepts from Kindergarten through High School. *Stack-n-Pack* card games may be checked out from your school (contact your school's Parent Liaison) or purchased online: [Stack-n-Pack Mathematics Card Games for K-HS](#)

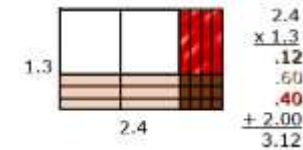
Game: **Equivalent Fractions**



### Sample Problems and Other Resources

#### Sample Problem 1

There are four partial products in the following area representation of  $2.4 \times 1.3$ . Label each of the four partial products on the illustration so that they are equivalent to the partial products in the algorithm.



Students should be able to describe the partial products displayed by the area model. For example,

" $3/10$  times  $4/10$  is  $12/100$ ."

$3/10$  times  $2$  is  $6/10$  or  $60/100$ ."

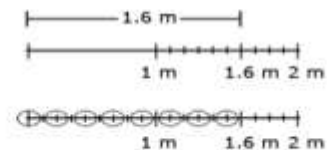
$1$  group of  $4/10$  is  $4/10$  or  $40/100$ ."

$1$  group of  $2$  is  $2$ ."

#### Sample Problem 2

Joe has 1.6 meters of rope. He has to cut pieces of rope that are 0.2 meters long. How many can he cut? Explain your solution using pictures, numbers or words.

- To divide to find the number of groups, a student might
  - draw a segment to represent 1.6 meters. In doing so, s/he would count in tenths to identify the 6 tenths, and be able identify the number of 2 tenths within the 6 tenths. The student can then extend the idea of counting by tenths to divide the one meter into tenths and determine that there are 5 more groups of 2 tenths.



- count groups of 2 tenths without the use of models or diagrams. Knowing that 1 can be thought of as  $10/10$ , a student might think of 1.6 as 16 tenths. Counting 2 tenths, 4 tenths, 6 tenths, . . . 16 tenths, a student can count 8 groups of 2 tenths.
- use their understanding of multiplication and think, "8 groups of 2 is 16, so 8 groups of  $2/10$  is  $16/10$  or  $1 \frac{6}{10}$ ."