

5th Grade - Unit 3

Operations with Decimals

In this unit, students will be continuing to build up their knowledge of multiplication and division. They will be applying what they learned in the last unit on multiplying and dividing whole numbers to now multiply and divide decimals.

Key Words

Decimal - a fraction whose denominator is a power of ten.
Equation - a statement that the values of two expressions are equal.
Product - the result of a multiplication problem.
Factor - a number being multiplied.
Quotient - the result of dividing one quantity by another.
Divisor - the number you are dividing by.
Dividend - the number being divided.
Remainder - the number left over when an integer is divided by another.

Standard Algorithm

$$\begin{array}{r} 4.7 \\ \times 24 \\ \hline 188 \\ + 940 \\ \hline 1128 \\ 1128 \div 10 = 112.8 \end{array}$$

Area Model

	40	+	7	tenths	
4	160		28		= 188
+					
20	800		140		= 940
					1128 tenths
					= 112.8

Partial Quotients

$$7.7 \div 4 = 1.925$$

How can I help at home?

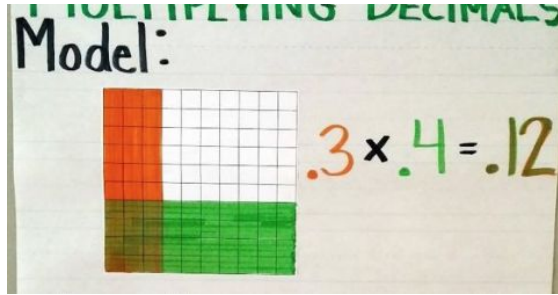
- ★ Ask your child what they learned in school and ask them to show you an example.
- ★ Become familiar with the area model, a different method for multiplying that you may have learned.
- ★ Become familiar with partial quotients, a different method for dividing than you may have learned.
- ★ Continue to review the place value system with your student.
- ★ Discuss mathematical patterns, such as 5×9 , 5×40 , 50×40 , 50×400 , 5×0.9 , 0.5×0.9 , etc.
- ★ Use money to help student visualize division of decimals.

Common Core Standards

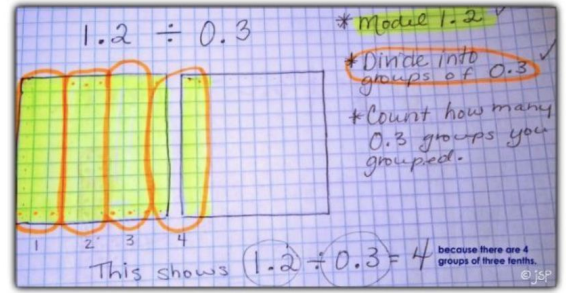
★ Perform operations with multi-digit whole numbers and with decimals to the hundredths, e.g., 46×72 , 3.1

Sample Problems & Models

Multiplication



Division



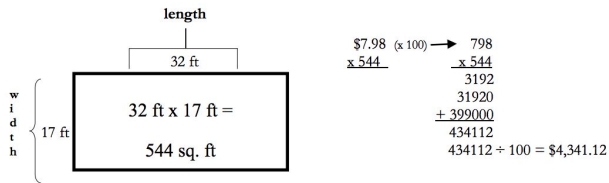
Pat rides his bike a total of 6.83 miles to and from school every day. How many miles does he ride in 25 days?

$$\begin{array}{r}
 6.83 \text{ miles} \times 25 \text{ days} \\
 \begin{array}{r}
 6.83 \text{ (x 100) } \rightarrow 683 \\
 \times 25 \\
 \hline
 3415 \\
 + 13660 \\
 \hline
 17075 \\
 17075 \div 100 = 170.75
 \end{array}
 \end{array}$$

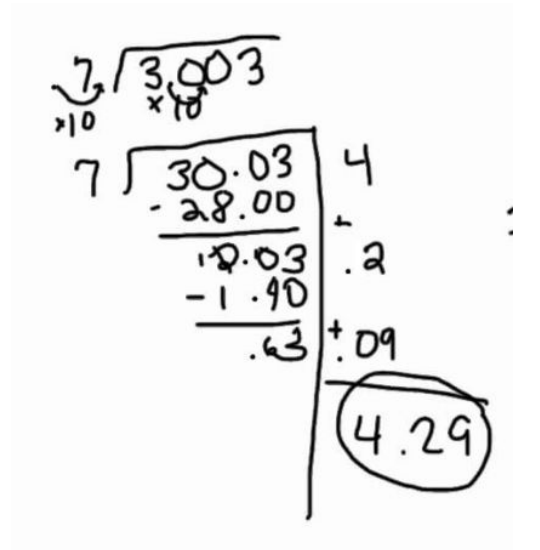
$25 \times 6.83 \xrightarrow{\times 100} 17075 \xrightarrow{\div 100} 170.75$

Pat rides his bike a total of 170.75 miles in 25 days.

A kitchen measures 32 feet by 17 feet. If tile cost \$7.98 per square foot, what is the total cost of putting tile in the kitchen?



The total cost of putting tile in the kitchen is \$4,341.12



Coming Up Next...

Students will build on earlier work with equivalent fractions and decimals to add and subtract fractions with unlike denominators. They will move from concrete examples (paper strips and fractions tiles) to abstract skills (writing their own math sentences).