



MATH NEWS



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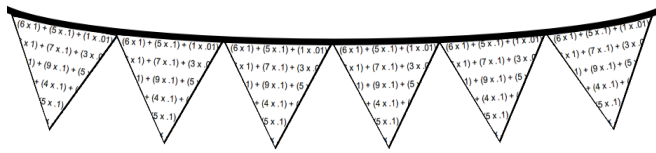
Grade 4, Module 6, Topic D

4th Grade Math

Module 6: Decimal Fractions

Math Parent Letter

This document is created to give parents and students a better understanding of the math concepts found in Eureka Math (© 2013 Common Core, Inc.) that is also posted as the Engage New York material which is taught in the classroom. Module 6 of Eureka Math (Engage New York) covers decimal fractions.



Focus Area ▶ Topic D: Addition with Tenths and Hundredths

Words to Know:

Tenth - place value unit such that 10 tenths equals 1 one whole

Hundredth - place value unit such that 100 hundredths equals 1 one whole

Here's something to think about.

If we want to add 2 boys and 3 girls together, what would our answer be?



We can't say 5 boys. We can't say 5 girls. We have to change the units from boys and girls to children. Now, we can say there are 5 children.



This change of unit is an important concept for students to understand when adding tenths and hundredths. Even if those tenths and hundredths are written as decimal numbers, students will need to find common units. In doing so, the student demonstrates their conceptual understanding of decimals along with a solid grasp of what happens when decimal numbers are added together.

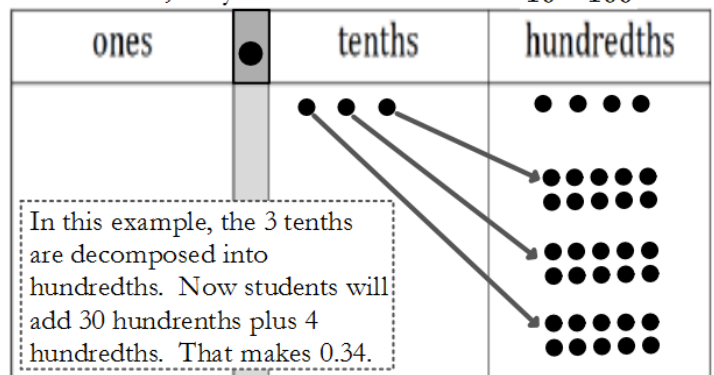
OBJECTIVES OF TOPIC D

- ▶ Apply understanding of fraction equivalence to add tenths and hundredths.
- ▶ Add decimal numbers by converting to fraction form.
- ▶ Solve word problems involving the addition of measurements in decimal form.

Focus Area ▶ Topic D: Addition with Tenths and Hundredths Addition of Decimals

Students will combine their work with addition of fractions and their work with decimals. They will decompose tenths using the area model and place value chart in order to add tenths and hundredths.

If students are asked to solve $0.3 + 0.04$, they should think of it as $\frac{3}{10} + \frac{4}{100}$.



Students also use multiplication to create equivalent fractions and express the sum in fraction form and as a decimal.

$$\frac{3}{10} = \frac{3 \times 10}{10 \times 10}$$

$$\frac{3}{10} + \frac{4}{100} = \frac{30}{100} + \frac{4}{100} = \frac{34}{100} = 0.34$$



Example Problem and Answer

Solve. Write your answer as a decimal.

$$\frac{9}{10} + \frac{42}{100}$$

$$\frac{9}{10} + \frac{42}{100} = \frac{90}{100} + \frac{42}{100} = \frac{132}{100} = 1.32$$

$\frac{9}{10}$ is renamed as $\frac{90}{100}$.

Focus Area ▶ Topic D: *Addition with Tenths and Hundredths*

Strategies for Adding Decimal Numbers

Students will be taught several different strategies for adding decimal numbers. In the following example, students are asked to add 6.8 to 5.7. The following is one strategy for adding these decimal numbers.

$$6.8 + 5.7 =$$

First, students should see these decimal numbers as mixed numbers.

$$= 6\frac{8}{10} + 5\frac{7}{10}$$

Next, they can add the whole numbers together and the fractions together.

$$= (6 + 5) + \left(\frac{8}{10} + \frac{7}{10}\right)$$

If we have 15 tenths, we can group 10 tenths and make 1 whole.

$$= 11\frac{15}{10}$$

Now add our 11 wholes, our 1 whole and our 5 tenths to make 12 and 5 tenths.

$$= 12\frac{5}{10}$$

$$6.8 + 5.7 = 12.5$$

Once the decimal fractions are added, the number sentence is written in decimal notation.



Example Problem and Answer

Solve the following. Convert tenths to hundredths before finding the sum. Rewrite the complete number sentence in decimal form.

$$3\frac{24}{100} + 8\frac{7}{10} =$$

First, we rename 7 tenths as 70 hundredths.

$$\frac{7 \times 10}{10 \times 10} = \frac{70}{100}$$

$$= 3\frac{24}{100} + 8\frac{70}{100}$$

Next, add the whole numbers together and the fractions together.

$$= (3 + 8) + \left(\frac{24}{100} + \frac{70}{100}\right)$$

$$= 11 + \frac{94}{100}$$

$$3.24 + 8.7 = 11.94$$

This is the complete number sentence written in decimal form.

Module 6: Decimal Fractions

Strategies for Adding Decimal Numbers in Word Problems

Students will learn to apply these strategies to solve measurement word problems involving addition. They convert decimals to fraction form, solve the problem, and write their statement using decimal form. In these problems, students can choose to solve using the strategy they think is best. Let's examine how 2 different students answered the sports drink question below.

Example Problem and Answer

The Ragin Cajuns football team has 2 coolers of sports drink on the sideline. The blue cooler contains 5.6 liters of sports drink. The yellow cooler contains 4.53 liters of sports drink. Together, how much sports drink do the two coolers contain?

Student 1 - Jane

$$5.6 + 4.53 = 5\frac{6}{10} + 4\frac{53}{100}$$

This student first changed the decimals into fractions. Then she renamed 5 and 6 tenths as 5 and 60 hundredths.

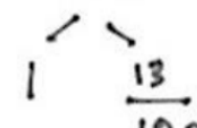
$$= 5\frac{60}{100} + 4\frac{53}{100}$$

She added the whole numbers 5 and 4 to get 9. Then she added 60 hundredths and 53 hundredths to make 113 hundredths.

$$= 9\frac{60}{100} + \frac{53}{100}$$

She used a number bond to pull out 100 hundredths or 1 whole from 113 hundredths, leaving 13 hundredths.

$$= 9\frac{113}{100}$$



She added the 1 whole to the 9 wholes and made 10 wholes. Then she added the 10 wholes to the 13 hundredths.

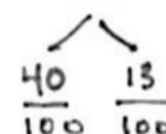
$$= 10\frac{13}{100}$$

$$5.6 + 4.53 = 10.13$$

Student 2 - Ted

$$5.6 + 4.53 = 5\frac{60}{100} + 4\frac{53}{100}$$

When this student changed the decimals into fractions, he renamed 5 and 6 tenths as 5 and 60 hundredths.



He created a number bond to show 53 hundredths as 2 parts, 40 hundredths and 13 hundredths.

$$= 10\frac{13}{100}$$

He made 1 whole by adding 60 hundredths and 40 hundredths. Then he added that 1 whole to the other whole numbers 5 and 4 to make 10.

$$5.6 + 4.53 = 10.13$$