



# MATH NEWS



Grade 5, Module 1, Topic B

## 5<sup>th</sup> Grade Math

Module 1: Place Value and Decimal Fractions

### Math Parent Letter

This document is created to give parents and students a better understanding of the math concepts found in the Eureka Math (© 2013 Common Core, Inc.) that is also posted as the Engage New York material taught in the classroom. Grade 5 Module 1 of Eureka Math (Engage New York) covers place value and decimal fractions. Naming decimal fractions in expanded, unit, and word forms in order to compare decimal fractions is the focus of Topic B.

**Topic B:** Decimal Fractions and Place Value Patterns

#### Words to know

- Thousandths/Hundredths/Tenths
- Word Form
- Standard Form
- Unit Form
- Decimal Fraction

#### Things to Remember!

**Decimal Fraction** - A fractional number with a denominator of 10 or a power of 10 (10, 100, 1,000) that can be written with a decimal point.

**Standard form** - A number written with one digit for each place value. Example: 52.64 or  $52\frac{64}{100}$

**Expanded form** - A way to write numbers that shows the place value of each digit.

Example:  $52.64 = 5 \times 10 + 2 \times 1 + 6 \times 0.1 + 4 \times 0.01$   
 $5 \times 10 + 2 \times 1 + 6 \times (\frac{1}{10}) + 4 \times (\frac{1}{100})$

**Unit form** - A way to show how many of each size unit are in the number.  $52.64 = 5 \text{ tens } 2 \text{ ones } 6 \text{ tenths } 4 \text{ hundredths}$   
52 ones 64 hundredths

**Greater than symbol** (>)

**Less than symbol** (<)

### OBJECTIVES OF TOPIC B

- Name decimal fractions in expanded, unit, and word forms by applying place value reasoning.
- Compare decimal fractions to the thousandths using like units to express comparisons with >, <, =.

## Focus Area – Topic B

Decimal Fractions and Place Value Patterns

### Different ways of naming a decimal fraction

**Example 1:**

**Word Form:** Thirteen thousandths = 0.013 =  $\frac{13}{1000}$

**Standard Form:**  $\frac{13}{1000} =$

**Expanded Form:**  $0.013 = 1 \times 0.01 + 3 \times 0.001$   
1 hundredth 3 thousandths

**Unit Forms:** 13 thousandths

### Example 2:

**Word Form:** Twenty-five and four hundred thirteen thousandths

**Standard Form:**  $25\frac{413}{1000} = 25.413$

**Expanded Forms: (with fractions or with decimals)**

$$25\frac{413}{1000} = 2 \times 10 + 5 \times 1 + 4 \times (\frac{1}{10}) + 1 \times (\frac{1}{100}) + 3 \times (\frac{1}{1000})$$

$$25.413 = 2 \times 10 + 5 \times 1 + 4 \times 0.1 + 1 \times 0.01 + 3 \times 0.001$$

**Unit Forms:**

2 tens 5 ones 4 tenths 1 hundredths 3 thousandths  
25 ones 413 thousandths



### Comparing decimal fractions

$$67.223 < 67.232$$

Strategy 1: Use a place value chart to compare the decimal fractions.

	6	7	2	2	3
	6	7	2	3	2

The place value chart shows that 67.223 is less than 67.232 because the digit 2 in the hundredths place in 67.223 is less than the digit 3 in the hundredths place in 67.232.

Strategy 2: Use unit form to compare decimal fractions.

$$67.223 = 67 \text{ ones } 223 \text{ thousandths}$$

$$67.232 = 67 \text{ ones } 232 \text{ thousandths}$$

67 ones is the same but 223 thousandths is less than 232 thousandths.

## Application Problems and Answers

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Mr. Pham wrote 2.619 on the board. Christy says its two and six hundred nineteen thousandths. Amy says its 2 ones 6 tenths 1 hundredth 9 thousandths. Who is right? Use words and numbers to explain your answer.

$$2.619 = 2 \frac{619}{1000} = \text{two and six hundred nineteen thousandths}$$

$$2 \frac{619}{1000} = 6 \times 1 + 6 \times \left(\frac{1}{10}\right) + 1 \times \left(\frac{1}{100}\right) + 9 \times \left(\frac{1}{1000}\right)$$

*2 ones 6 tenths 1 hundredth 9 thousandths*

*Both Amy and Christy are correct. Christy chose to represent the number in word form and Amy has chosen unit form. Both are equal to 2.619.*

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Lance measured 0.485 liter of water. Angel measured 0.5 liter of water. Lance said, "My beaker has more water than yours because my number has 3 decimal places and yours only has 1." Is Lance correct? Use words and numbers to explain your answer.

		0	4	8	5
		0	5	0	0

$$0.485 < 0.5$$

*Lance is not correct. I know this because 5 tenths of a liter of water is equal to 500 thousandths of water. 500 thousandths is greater than 485 thousandths of water.*